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# **Federally Funded Research and Development Center (FFRDC) Option for ISS Utilization Management Organization**

November 1, 2002



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# Federally Funded Research and Development Center (FFRDC) Definition

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A Federally Funded Research and Development Center (FFRDC) is a unique organization that assists the United States government with scientific research and analysis, systems development, and systems acquisition. FFRDCs bring together the expertise and outlook of government, industry, and academia to solve complex technical problems that cannot be solved by any one group alone.

Working in the public interest, FFRDCs operate as strategic partners with NASA and other federal agencies using ISS. In order to ensure the highest levels of objectivity and technical excellence, FFRDCs are organized as independent, not-for-profit entities, with limitations and restrictions on their activities. This special standing permits a degree of access, (e.g., the ability to partner with the centers, and a long-term perspective not shared by commercial contractors.)



# ISS FFRDC Option

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## **Purpose of an ISS Utilization Management Organization**

- To facilitate the pursuit of flight research on the ISS;
- Optimize research opportunities within current capabilities of ISS and with future enhancements for greater capabilities; and
- Increase the long-range productivity of research and development on the ISS.



# ISS FFRDC Option

## End-State Description

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### **In it's end-state, the ISS FFRDC is envisioned as follows:**

- The ISS FFRDC, contracted to a non-profit organization or consortium and managed by the Office of Biological and Physical Research (Code U), would be responsible for the leadership of a majority of the functions associated with management of ISS Utilization.
- Specifically, the ISS FFRDC would lead the following functional areas:
  - Science, Technology, and Commercial User Leadership
  - Maintaining and Sustaining Flight Research
  - Integrating User Mission - Analytical
  - Integrating User Missions - Operational
- Additionally, the FFRDC would provide a direct Customer Integration and Operations support capability to the discipline specific Payload Developers at their associated NASA Center.
- New Payload Development specific functional responsibilities (e.g. DDT&E, requirements development, cost, schedule, and risk assessment) would be primarily staffed and lead by the currently responsible NASA Center.
- Physical Integration of User Missions would remain as a NASA Appropriate capability.
- Because of its Tactical level leadership responsibilities and capabilities the ISS FFRDC would support NASA in performance of Strategic Planning.
- Single point of entry for all users.
- As part of transition, initial processing of IP payloads remains with NASA, until

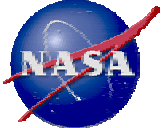


# ISS FFRDC Option

## End-State Functional Allocation

### S/T/C Leadership, Mission Management, Engineering

	FFRDC Lead	FFRDC Support	Remarks
<b>0)</b> Define, Develop and Implement Policy and Strategic Plans	Member of SSUB	Support	NASA leads
<b>1)</b> Management of Research Utilization			
a) Establish Research Plans		Support	NASA leads
b) Manage Research Programs	Lead		
c) Manage Integrated Research Utilization	Lead		
<b>2)</b> Preparing and Allocating Budgets			
a) Budget Formulation, Justification		Support	NASA leads
<b>3)</b> Selecting and Prioritizing Research			
a) Managing selection process	Lead		
b) Selection			NASA leads
c) Prioritizing selections	Lead		
<b>5)</b> Developing Cost, Schedule, and Risk Assessments			
a) Perform Cost, Schedule, Risk Management Assessment	Lead		NASA Support
b) Authority to Proceed	Lead		NASA leads for new hardware build
<b>13)</b> Managing Missions and Allocating Services			
a) Advocacy, Manifesting and Resource Allocations	Lead		
b) ISS Research Mission Management	Lead		NASA leads vehicle integration tasks
<b>14)</b> Integrating User Mission - Analytical			
a) Payload Engineering Integration	Lead		NASA leads vehicle integration tasks
b) Payload Software Integration and Flight Production	Lead		NASA leads vehicle integration tasks
<b>16)</b> Integrating User Missions - Operational			
a) Payload Training	Lead		
b) Operations Integration	Lead		NASA leads vehicle interface tasks
<b>18)</b> Educating and Reaching Out to the Public (including industry)			
a) Management and Control	Lead		Direction and approval of strategy and products provided by NASA
b) Disseminate, Communicate & Report results to ISS customers	Lead		
<b>19)</b> Recommending ISS Pre-Planned Product Improvements	Lead		For payload systems input to P3I
<b>20)</b> Managing Archival of Research Samples, Data, and Results	Lead		



# ISS FFRDC Option

## End-State Functional Allocation

### Sustaining Payloads

	FFRDC Lead	FFRDC Support	Remarks
<b>7)</b> Maintaining and Sustaining Flight Research Systems			
7*) Customer Integration and Ops Support Representative	Lead		New Role
a) DDT & E	Lead		
b) Operations	Lead		
<b>9)</b> Maintaining and Sustaining Ground Systems			
a) Identify changes/upgrades to Research Flight Systems	Lead		
b) Maintain & Sustain Research Ground Systems	Lead		

### Developing Payloads

	FFRDC Lead	FFRDC Support	Remarks
<b>4)</b> Establishing Payload/Experiment Requirements and Feasibility			
a) Research Requirements	Lead		NASA supported
b) Engineering Concept Development & Hardware Assessments	Lead		NASA supported
<b>6)</b> Developing and Qualifying Flight Research Systems			
6*) Customer Integration and Ops Support Representative	Lead		New Role
a) DDT & E			NASA led
b) Subrack Integration			NASA led
c) Operations	Lead		
<b>8)</b> Developing Ground Systems	Lead		

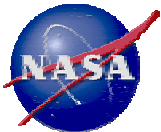


# ISS FFRDC Option

## End-State Functional Allocation

Other Functions	Lead	Remarks
0) Define, Develop and Implement Policy and Strategic Plans	NASA	Inherently Governmental; Support provided by FFRDC
1*) Code U Contract Oversight of FFRDC	NASA	Inherently Governmental
2) Preparing and Allocating Budgets		
a) Budget Formulation, Justification	NASA	Inherently Governmental; Support provided by FFRDC
b) Budget Execution	NASA	Inherently Governmental
3) Selecting and prioritizing Research		
b) Selection	NASA	Appropriately NASA led
5) Developing Cost, Schedule, and Risk Assessments		
b) Authority to Proceed	NASA	Appropriately NASA for new build hardware
6) Developing and Qualifying Research Systems		
a) DDT&E	NASA	
b) Subrack Integration	NASA	
10) Constructing Ground Facilities		Proposal dependent
11) Maintaining Ground Facilities		Proposal dependent
12) Certifying Safety of Research Flight and Ground Systems	NASA	Appropriately NASA Led
15) Integrating User Missions - Physical	NASA	Appropriately NASA Led
17) Conducting Research & Analysis and Disseminating Results	PI	





# ISS FFRDC End-State Functional Table

## 0) Define, Develop and Implement Policy and Strategic Plans

### 1) Management of Research Utilization

#### 1\*) Code U Contract Oversight of FFRDC

- a) Establish Research Plans
- b) Manage ISS Research Programs
- c) Manage Integrated Research Utilization

### 2) Preparing and Allocating Budgets

- a) Budget Formulation, Justification
- b) Budget Execution

### 3) Selecting and Prioritizing Research

- a) Managing selection process
- b) Selection
- c) Prioritizing selections

### 4) Establishing Payload/Experiment Requirements and Feasibility

- a) Research Requirements
- b) Engineering Concept Development & Hardware Assessments

### 5) Developing Cost, Schedule, and Risk Assessments

- a) Perform Cost, Schedule, Risk Management Assessment
- b) Authority to Proceed (Lead only for reuse of Sustaining Hardware)

### 6) Developing and Qualifying Flight Research Systems

#### 6\*) Customer Integration and Ops Supt Reps

- a) DDT&E
- b) Subrack Integration
- c) Operations

### 7) Maintaining and Sustaining Flight Research Systems

#### 7\*) Project Management/Customer Integration and Ops Supt Reps

- a) Identify changes/upgrades to Research Flight Systems
- b) Maintain & Sustain Research Flight Systems

### 8) Developing Ground Systems

### 9) Maintaining and Sustaining Ground Systems

- a) Identify changes/upgrades to Research Ground Systems
- b) Maintain & Sustain Research Ground Systems

## 10) Constructing Ground Facilities

## 11) Maintaining Ground Facilities

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Depends upon FFRDC proposal

Depends upon FFRDC proposal

## 12) Certifying Safety of Research Flight and Ground Systems

### 13) Managing Missions and Allocating Services

- a) Advocacy, Manifesting and Resource Allocations
- b) ISS Research Mission Management

### 14) Integrating User Mission – Analytical

- a) Payload Engineering Integration
- b) Payload Software Integration and Flight Production

### 15) Integrating User Missions - Physical

### 16) Integrating User Missions - Operational

- a) Payload Training
- b) Operations Integration

### 17) Conducting Research & Analysis and Disseminating Results

### 18) Educating and Reaching Out to the Public (including industry)

- a) Management and Control
- b) Disseminate, Communicate & Support results to ISS customers

### 19) Recommending ISS Pre-Planned Product Improvements

### 20) Managing Archival of Research Samples, Data, and Results

Inherently or Appropriately Governmental

Science/Technology/Commercialization Management and Leadership

Sustaining Payloads and/or Facilities

Developing Payloads and/or Facilities

Integrating User Mission – Analytical

Integrating User Missions - Operational

Independent of Functional Allocation

Applicable to the Principal Investigator

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# Option Description



# ISS FFRDC Option Description

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- Key Aspect Summary
- Rationale
- Characteristics
- Legal Structure
- Establishment
- Management Structure & Interfaces
- Transition
- Budget & Finance
- Personnel & Staffing
- Performance Evaluation
- Other Considerations



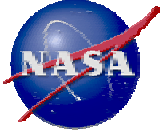
# ISS FFRDC Key Aspects Summary

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## Key Aspects Summary

- Operated by university or consortium of universities on a not-for-profit basis.
- Can only perform work within specific purpose of mission statement.\*
- Specifically exempted from competition to help FFRDC attract and retain highly qualified personnel. Creation of FFRDC can be competed however.
- Reviewed every five years. If needs have changed, then NASA can either modify the mission statement or smoothly transition from the FFRDC relationship.
- FFRDC cannot compete against private sector,\* but can contract with private sector for goods or services necessary to meet its mission or purpose. Assumed that FFRDC would subcontract for those efforts currently being performed by contractors in the areas of operations and hardware maintenance.
- Special relationship permits FFRDC to partner with NASA and to participate in strategic planning.
- Has authority to obtain funding from other government agencies and private sector consistent with stated mission or purpose.
- Proposed functional allocation has FFRDC managing the utilization of ISS, but will not be involved in “hands-on” research.\*
- The FFRDC would use the Inter-Agency Personnel Act for key positions, (e.g., customer representative and vehicle interface), to ensure that trust is established between NASA and the FFRDC.

\*Limitations designed to prevent an organizational conflict of interest



# ISS FFRDC Rationale

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## Rationale

- An FFRDC meets some special long-term research or development need which cannot be met as effectively by existing in-house or contractor resources.
- An FFRDC, in order to discharge its responsibilities to the sponsoring agency, has access, beyond that which is common to the normal contractual relationship, to Government and supplier data, including sensitive and proprietary data, and to employees and facilities.
- Consequently, an FFRDC is uniquely qualified to represent the needs of NASA, while also enjoying the independence of not being part of the Government.
  - Permits the FFRDC to sit on strategic boards with NASA, (e.g., the SSUB)
  - Permits the FFRDC to partner with the Centers
  - Permits the FFRDC to have the objectivity to represent the needs of a diverse user community.
  - Permits the FFRDC to attract high quality personnel with the necessary expertise to support S/T/C.
  - Limitations on contracting aid conflict of interest problems and give the FFRDC more perceived objectivity.
  - Status of being FFRDC coupled with long term relationship should give new entity more prestige to attract personnel and additional influence within the user community.



# ISS FFRDC Characteristics

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## Characteristics

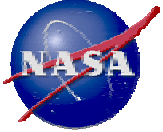
- ISS FFRDC will be established to better meet long-term research and development need which cannot be met as effectively by in-house or contractor resources.
- Usually operated by university or consortium of universities on a nonprofit basis.
- Intended to attract and retain highly qualified personnel.
- Intended to bring together the expertise and maintain the outlook of the government.
- Exempted from competition.
- ISS FFRDC cannot compete against the private sector, but can contract with the private sector for goods and services necessary to meet mission or purpose.
- Influence derived in part from prestige of the entity operating the FFRDC.
- Prestige of FFRDC affects ability to be an advocate.
- ISS FFRDC will not be involved in “hands on” research given the limited research opportunities and highly diverse nature of users.



# ISS FFRDC Characteristics, cont'd

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- Can obtain funding from private sector, but the work must come within the stated mission or purpose of an ISS FFRDC.
- NASA must sponsor the ISS FFRDC.
- ISS FFRDC must have specific purpose or mission reflect in the sponsoring agreement. Generally, sponsoring agreement is in form of a contract as being proposed here.
- Every five years NASA must review whether the need and purpose for the ISS FFRDC still exist.
- Long term relationship contemplated to retain highly qualified employees, to preserve its familiarity with the needs of NASA, and to provide a quick response capability.
- Enjoys a special relationship with NASA with access to sensitive and proprietary data, and to Government employees and facilities. This special relationship allows it to participate on the SSUB and to partner with the various NASA Centers.

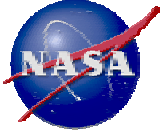


# ISS FFRDC Characteristics, cont'd

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- Operates in the public interest with objectivity and independence, but must be free from organizational conflicts of interest, and fully disclose its affairs to the sponsoring agency.
- ISS FFRDC may be classified as studies and analyses centers, systems engineering and integration centers, and research and development laboratories. This FFRDC would focus upon management of S/T/C utilization of ISS.
- There are currently 36 FFRDCs. These 36 FFRDCs are managed by a variety of organizations including the RAND Corporation, the MITRE Corporation, California Institute of Technology, and the Massachusetts Institute of Technology.





# ISS FFRDC Legal Structure

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## Legal Structure

- FFRDCs are operated, managed, and/or administered by either:
  - A university or consortium of universities,
  - Other not-for-profit or nonprofit organizations, or as
  - An industrial firm, as an autonomous organization or as an identifiable separate operating unit of a parent organization.
- Awarded under Federal Acquisition Regulation (FAR) section 35.017 “Federally Funded Research and Development Centers.”
- Exempt from competition under the Competition in Contracting Act (CICA). [Plan is to create FFRDC via competition and maintain through sole source.]
- Notification to the Executive Office of the President, Office of Science and Technology Policy (OSTP) prior to establishing a new FFRDC. [Congressional notification needed prior to receiving any DoD funding.]



# ISS FFRDC Legal Structure, cont'd

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- A written agreement of sponsorship between the Government and the FFRDC shall be prepared when the FFRDC is established which:
  - Serves to facilitate a long-term relationship between the Government and an FFRDC;
  - Specifies the FFRDC's mission; and
  - Ensures a periodic reevaluation of the FFRDC.
- The sponsoring agreement may take various forms including:
  - A contract between the Government and the FFRDC;
  - Another legal instrument under which an FFRDC accomplishes effort, or;
  - A separate written agreement; and
  - Notwithstanding its form, the sponsoring agreement shall be clearly designated as such by NASA.



# ISS FFRDC Legal Structure, cont'd

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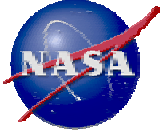
- As a minimum, the following requirements must be addressed in either a sponsoring agreement or sponsoring agencies' policies and procedures:
  - (1) **A statement of the purpose and mission of the FFRDC.**
  - (2) **Provisions for the orderly termination or nonrenewal of the agreement, disposal of assets, and settlement of liabilities.** The responsibility for capitalization of an FFRDC must be defined in such a manner that ownership of assets may be readily and equitably determined upon termination of the FFRDC's relationship with its sponsor(s).
  - (3) **A provision for the identification of retained earnings (reserves) and the development of a plan for their use and disposition.**
  - (4) **A prohibition against the FFRDC competing with any non-FFRDC concern in response to a Federal agency request for proposal for other than the operation of an FFRDC.** This prohibition is not required to be applied to any parent organization or other subsidiary of the parent organization in its non-FFRDC operations. Requests for information, qualifications or capabilities can be answered unless otherwise restricted by the sponsor.
  - (5) **A delineation of whether or not the FFRDC may accept work from other than the sponsor(s).** If nonsponsor work can be accepted, a delineation of the procedures to be followed, along with any limitations as to the nonsponsors from which work can be accepted (other Federal agencies, State or local governments, nonprofit or profit organizations, etc.).



# ISS FFRDC Legal Structure, cont'd

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- The sponsoring agreement or sponsoring agencies' policies and procedures may also contain, as appropriate, other provisions, such as identification of:
  - (1) Any cost elements which will require advance agreement if cost-type contracts are used; and
  - (2) Considerations which will affect negotiation of fees where payment of fees is determined by the sponsor(s) to be appropriate.
- The term of the agreement will not exceed 5 years, but can be renewed, as a result of periodic review, in increments not to exceed 5 years.



# ISS FFRDC Establishment

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## **To establish an FFRDC, NASA shall ensure the following:**

- Existing alternative sources for satisfying agency requirements cannot effectively meet the special research or development needs
- The notices required for publication (see 5.205(b)) are placed as required
- There is sufficient Government expertise available to adequately and objectively evaluate the work to be performed by the FFRDC.
- The Executive Office of OSTP is notified
- Controls are established to ensure that the costs of the services being provided to the Government are reasonable
- The basic purpose and mission of the FFRDC is stated clearly enough to enable differentiation between work which should be performed by the FFRDC and that which should be performed by non-FFRDC's



# ISS FFRDC Establishment, cont'd

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- A reasonable continuity in the level of support to the FFRDC is maintained, consistent with the agency's need for the FFRDC and the terms of the sponsoring agreement
- The FFRDC is operated, managed, or administered by an autonomous organization or as an identifiably separate operating unit of a parent organization, and is required to operate in the public interest, free from organizational conflict of interest, and to disclose its affairs (as an FFRDC) to the primary sponsor
- Quantity production or manufacturing is not performed unless authorized by legislation
- Approval is received from the head of the sponsoring agency

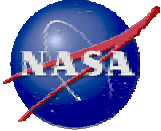


# ISS FFRDC Management Structure and Interfaces

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## Management Structure and Interfaces

- FFRDC's are operated, managed, and/or administered by either a university or consortium of universities, other not-for-profit or nonprofit organizations, or an industrial firm, as an autonomous or an identified separate operating unit of a parent organization
- Executive officials are selected within and by the FFRDC
- Would be seeking an academically lead, not for profit consortium
- It is anticipated that this FFRDC would enter into partnering agreements with the centers as interface mechanism
- To maximum extent possible, FFRDC will be the single point of entry for customers
- NASA will continue to process IP's payloads as part of competencies
- PD functions do not move to FFRDC; however, FFRDC must support to ensure requirements properly translated to PD

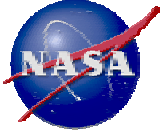


# ISS FFRDC Transition

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- The transition to the FFRDC is envisioned to be a time-phased approach across three years with the assumption that the FFRDC will assume the full set of responsibilities by the beginning of year three.
  - Except for functions 4, 6\*, 7\*, 18, 19 & 20, FFRDC begins with support prior to taking lead.
  - More complex functions entail two years of support prior to FFRDC taking lead
  - FFRDC does not begin supporting some functions in the first year.
- FFRDC takes lead of two new functions, customer integration and ops support representative for functions 6\* and 7\*. FFRDC takes lead of these new functions, but 50% of FTEs will be on IPA's.
- Gave the FFRDC a critical mass of functions while allowing the ability to ramp up.
  - Involve FFRDC in management early on.
  - Emphasis given to those functions requiring interface with customer.
  - Quickly involve FFRDC in areas perceived to be broken, (e.g., outreach.)
- Need to verify proposed transition schedule through RFI.





# ISS FFRDC Budget and Finance

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## Budget and Finance

- FFRDCs have the authority to request their budgets
- Funds can be earned by contracted payments
- Budgets and costs are subject to government rules
- FFRDCs must develop overhead rates (management fees) in accord with government criteria and standards and justify those fees to DCAA
- FFRDCs are subject to governmental cost accounting standards and to governmental audits
- An FFRDC may perform work for other than the sponsoring agency under the Economy Act, or other applicable legislation, when the work is not otherwise available from the private sector
- FFRDC's can obtain funding from private sources, but it must be for performing work that is within the mission or purpose of the FFRDC, (e.g., the use of ISS.)



# ISS FFRDC Personnel and Staffing

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## Personnel and Staffing

- FFRDC's directly hire their personnel. Restraints on personnel policies are contractual between the managers and the sponsoring agencies. Personnel are subject to conflict of interest regulations. Compensation and benefits are subject to review and to the upper limits of government salary rates. Position descriptions may be required by the sponsor.
- FFRDC directly hires their personnel, using their own personnel system
- FFRDC is not subject to the Federal pay schedule
- Per 5 U.S.C. 3371 et. seq. IPA's can be used to assign NASA civil servants to FFRDC for up to two years with additional two years if approved by the head of the agency
- IPA's for Function 6\*. IPA's remain at Center-level where expertise resides.



# ISS FFRDC Performance Evaluation

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## Performance Evaluation

- An Award fee provision can be included in the sponsoring agreement/contract such as is the case with the contract NASA has with Caltech for the operation of JPL

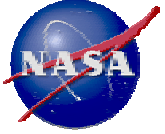


# ISS FFRDC Other Considerations

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## Other Considerations

- Outside constraints include:
  - Limited flight opportunities to and from ISS
  - Limited resource availability, (e.g., crew time both on ground and on orbit, comm data, power, thermal, etc.)
- The ISS user community is represented by multiple organizations including several NASA enterprises, other government agencies, academia, industry, and international parties. While the FFRDC has the capability to provide support to all users, use of the FFRDC for selection, results archiving and dissemination, and education and outreach will be at the discretion of these organizations.
- The capability of the FFRDC to provide payload development will be limited by payload type and/or complexity at a level to be determined by NASA.
- Contract provisions will limit the amount of ISS research and payload development that the FFRDC may perform in-house.



# ISS FFRDC Other Considerations, cont'd

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- Need to have private sector validate transition schedule via RFI
- Model assumes improvement that NASA will reorganize/improve functions it retains



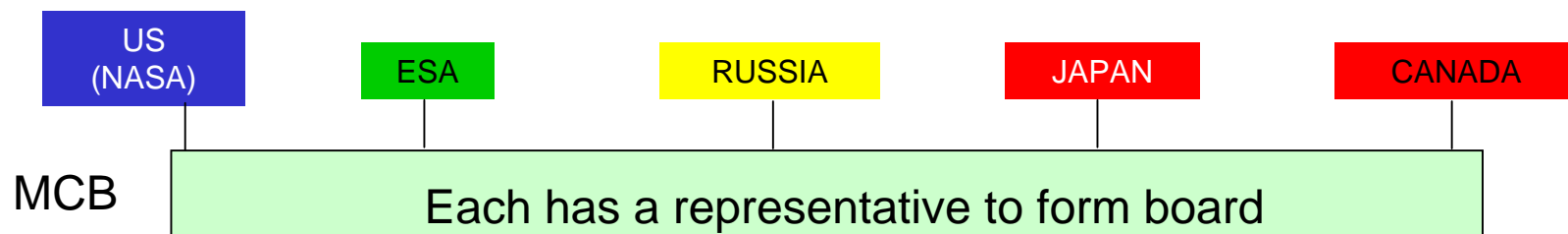
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# Option Management Structure

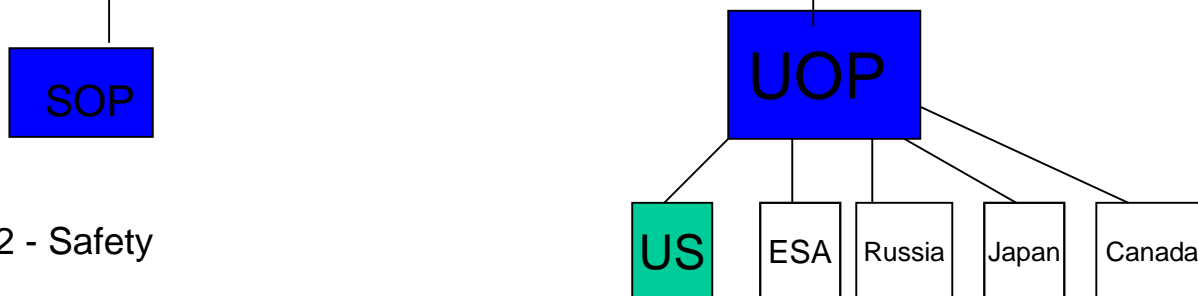


# ISS FFRDC Management Structure

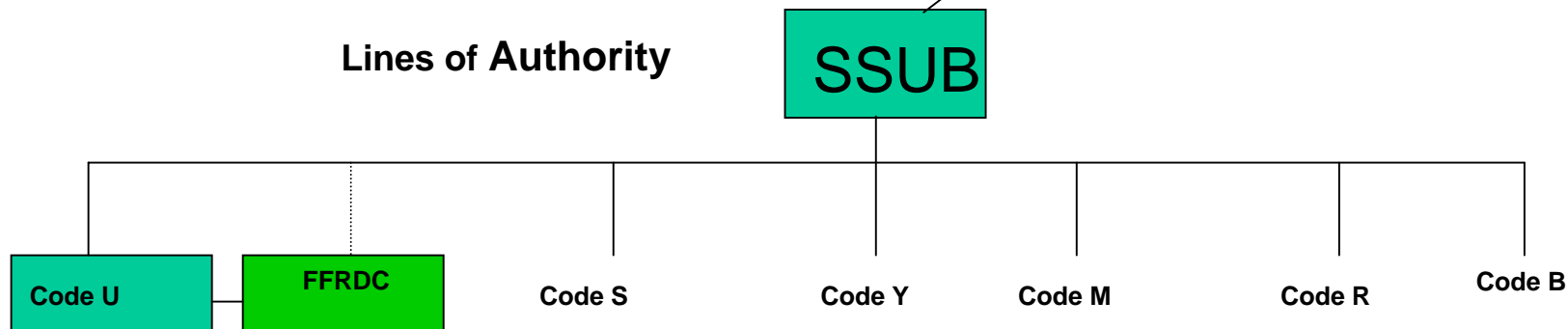
## International Partners



Function 12 - Safety

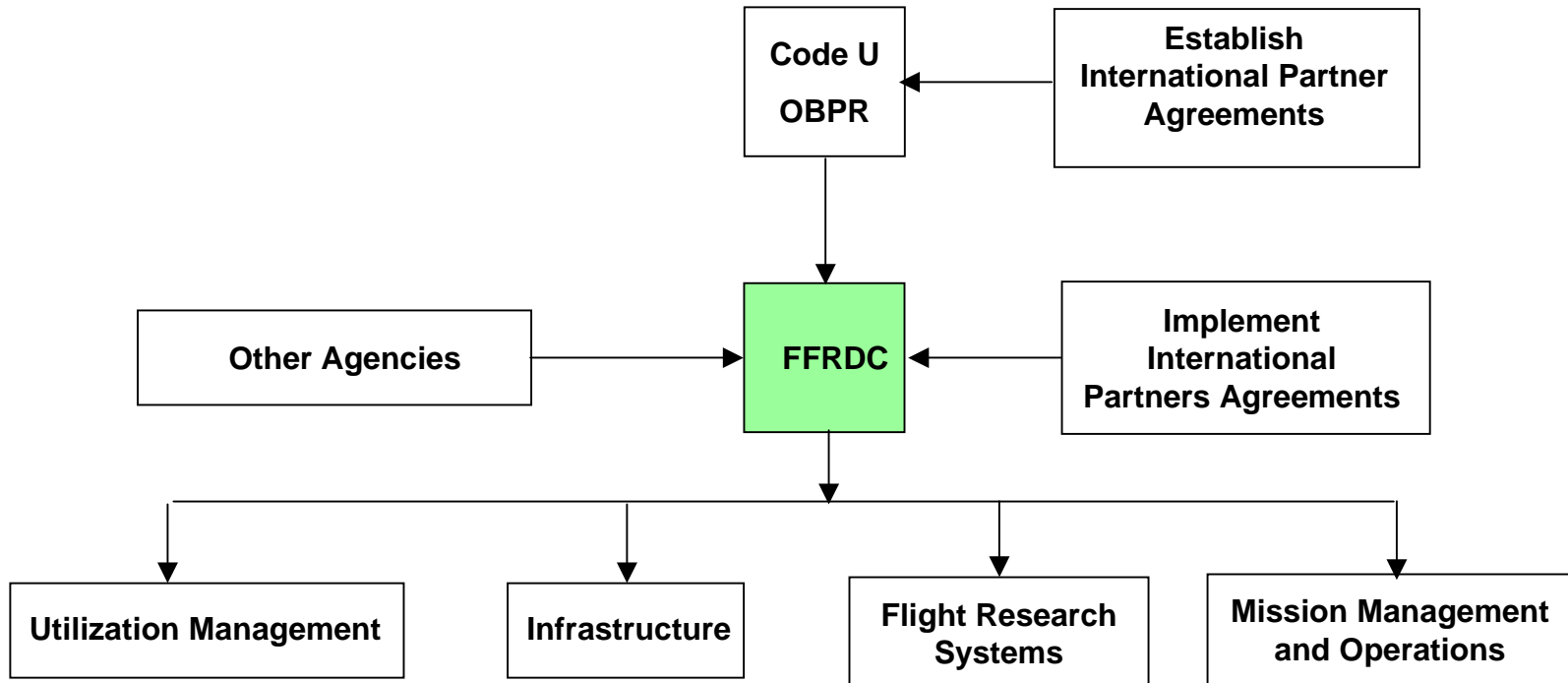


## Lines of Authority





# ISS FFRDC Management Structure







# ISS FFRDC Option

## Functional Organization (at End State)

### Infrastructure

- \* (L) General & Administrative
- \* (L) Sub-Contractor Administration

### Mission Management and Operations

- 1b (L) Manage Research Programs
- 1c (L) Manage Integrated Research Utilization
- 13a (L) Advocacy, Manifesting and Resource Allocations
- 13 b (L) ISS Research Mission Mgmt
- 14 (L) Analytical Integrated User Mission Process (PE&I)  
(Exception: vehicle interface specific function remain w/NASA)
- 8 (L) Ground Systems Development
- 9 (L) Maintain & Sustain Ground Systems
- 16b (L) Operations Integration (Exception: vehicle interface specific functions remain with NASA)
- 20 (L) Managing Archive

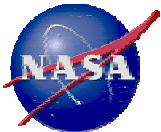
### Utilization Management

- \*(L) Establish S/T/C Opportunities Office – Single Entry Point for Users
- 0/1a (S) Support SSUB, Implement Policy and Strategic Plans
- 1b/c (L) Manage Research Programs and Integrated Research Utilization
- 2a (S) Formulate Budgets
- 3 a/c (L) Manage Selection Process and Prioritization (with support of FFRDC Chief Scientist)
- 18 (L) Education and Public Outreach
- 19 (L) Recommend ISS P<sup>3</sup>

### Flight Research Systems

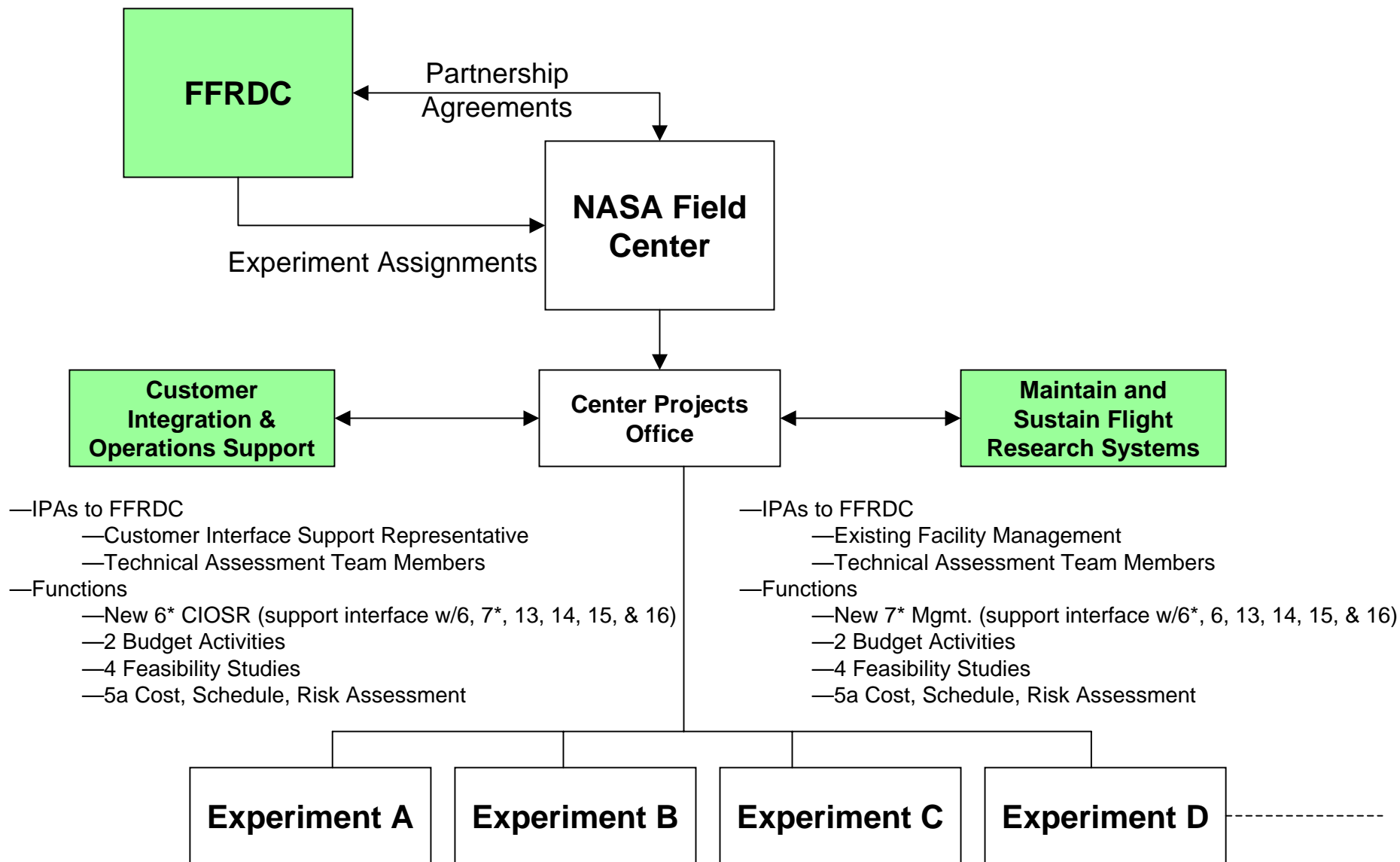
- 4 (L) Experiment Requirements & Feasibility (primarily supported by NASA Center Expertise/Personnel)
- 5 (L) Cost, Schedule, & Risk Assessments and Authority to Proceed (Lead ATP only for reuse of Sustaining Hardware elements; C/S/R for newly developed payload provided by NASA)
- 6\*/7\* (L) Program Manager/Customer Integration and Operations Support Representative (Lead User Customer Interface)
- 6c (L) Support User Operations Development
- 7 (L) Maintain & Sustain Flight Systems
- 16a (L) Payload Training

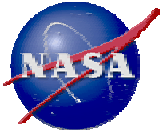
\* New FFRDC specific function



# ISS FFRDC Option

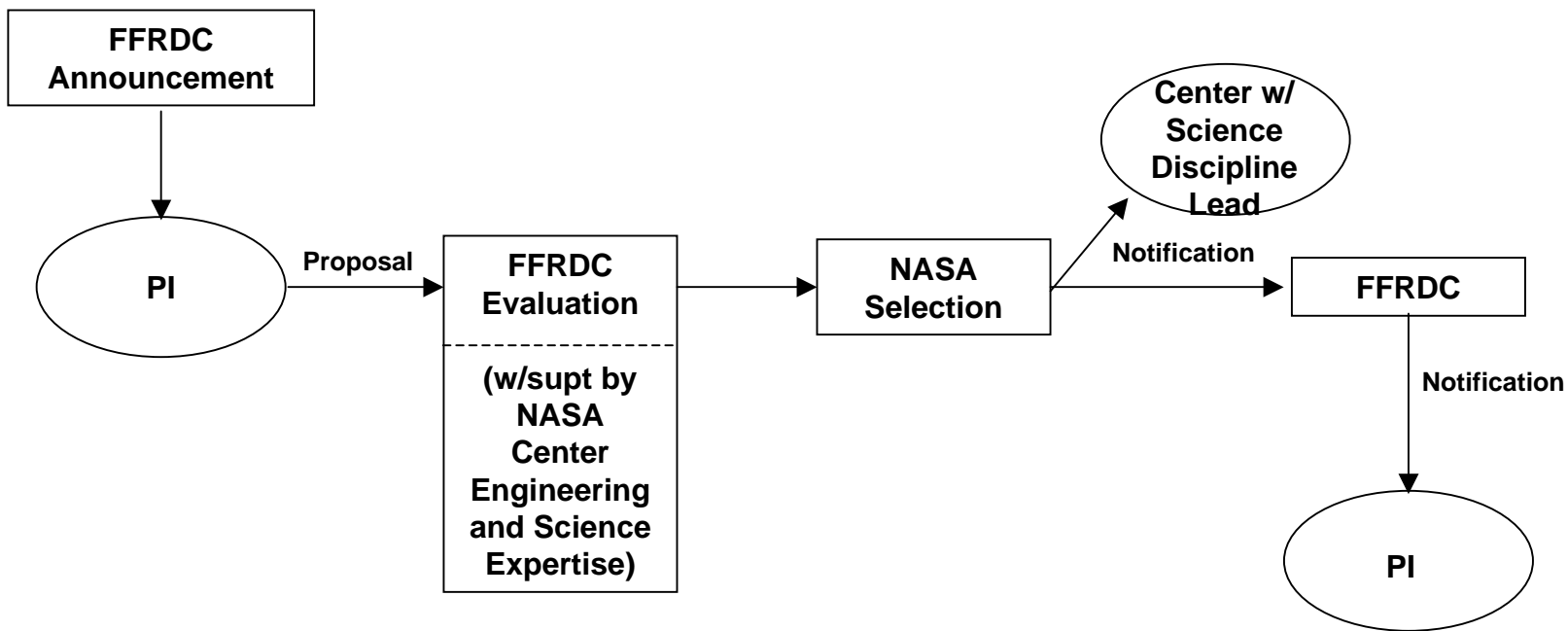
## Relationship with PD Field Centers





# Science Selection ISS Principal Investigator (PI)

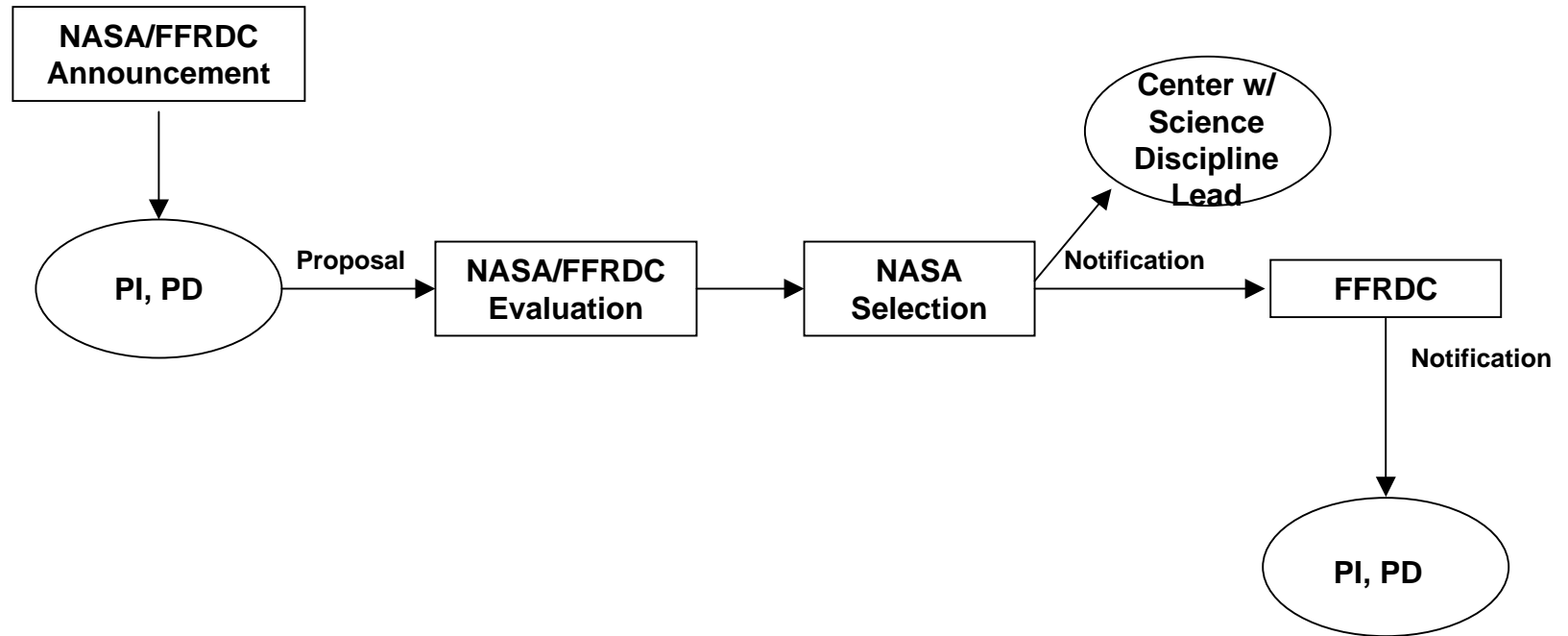
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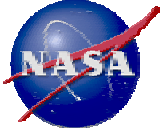




# International Science & Technology Selection

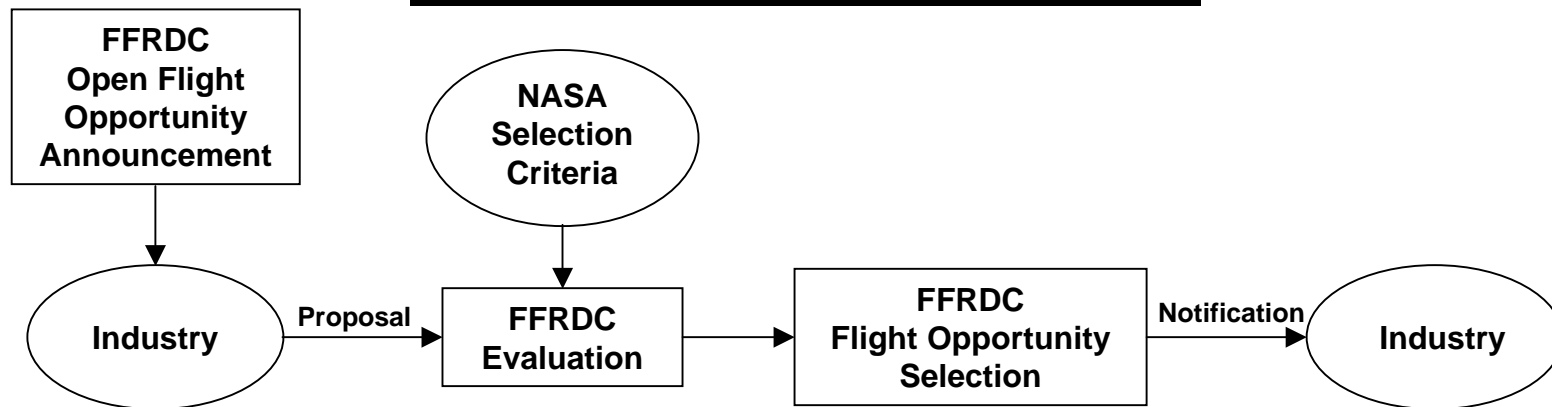
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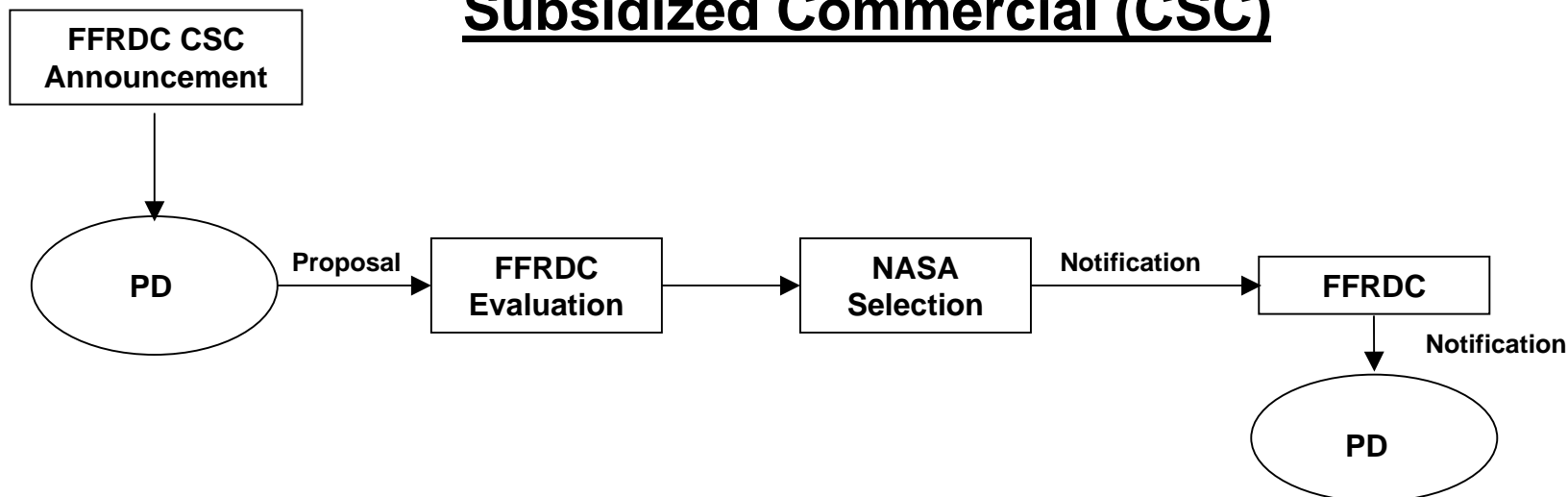


# Commercial Selection

## Non-subsidized Commercial



## Subsidized Commercial (CSC)



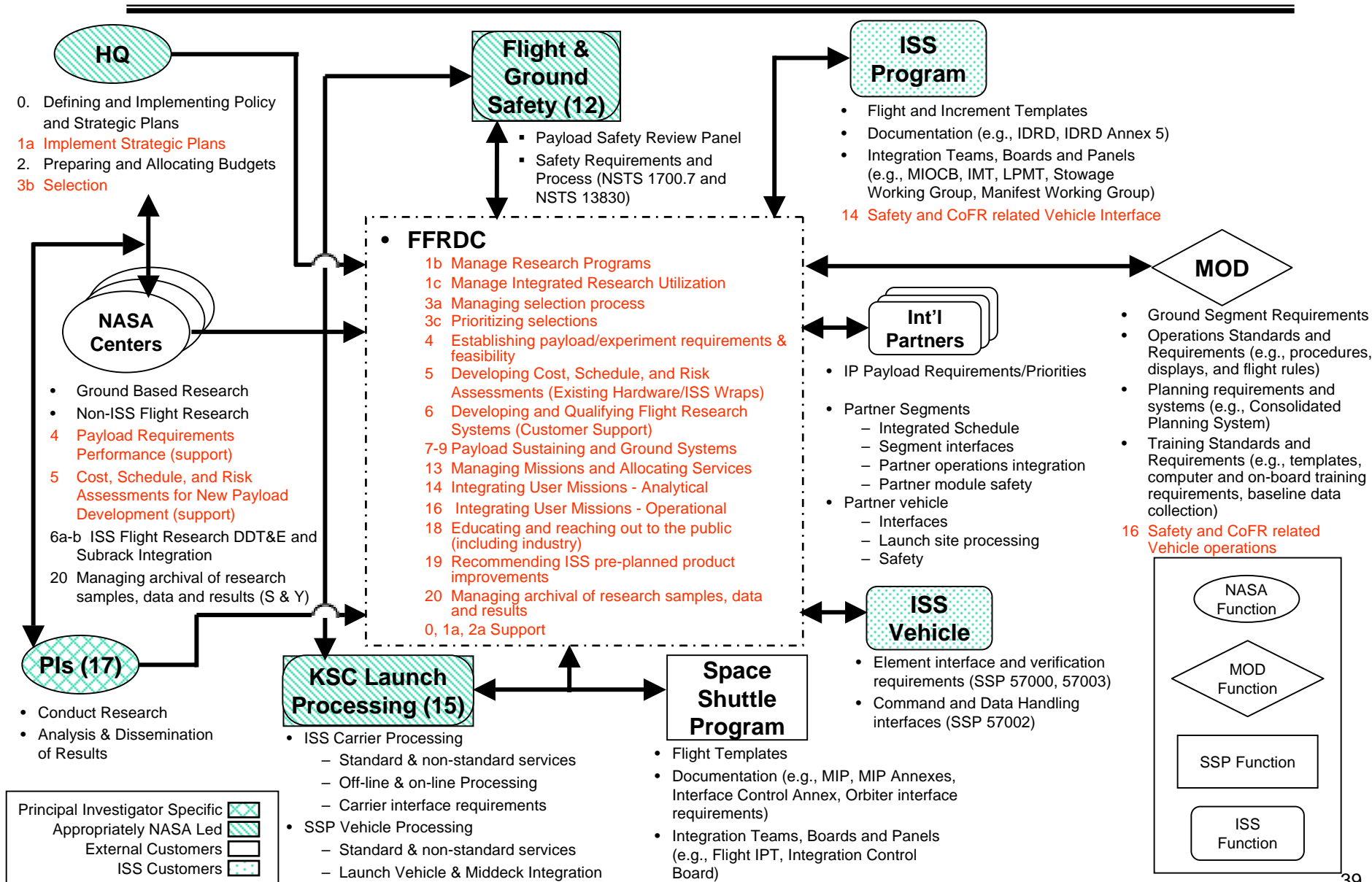


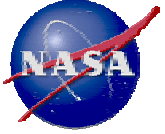
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# Utilization Interface Comparison



# ISS FFRDC Option Interfaces

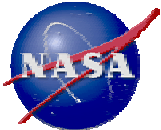




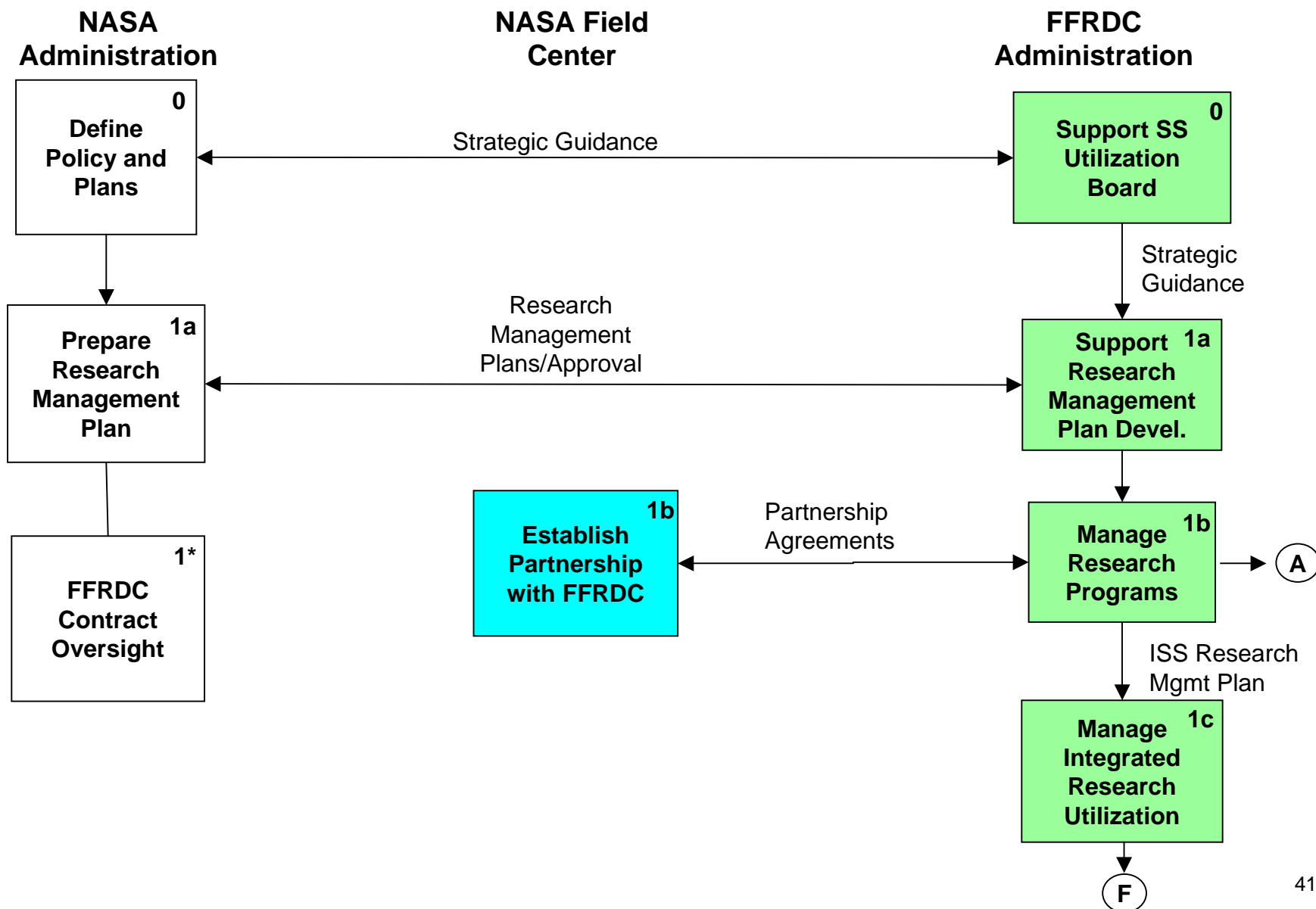
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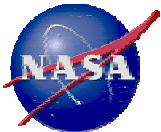
# Flow Diagrams



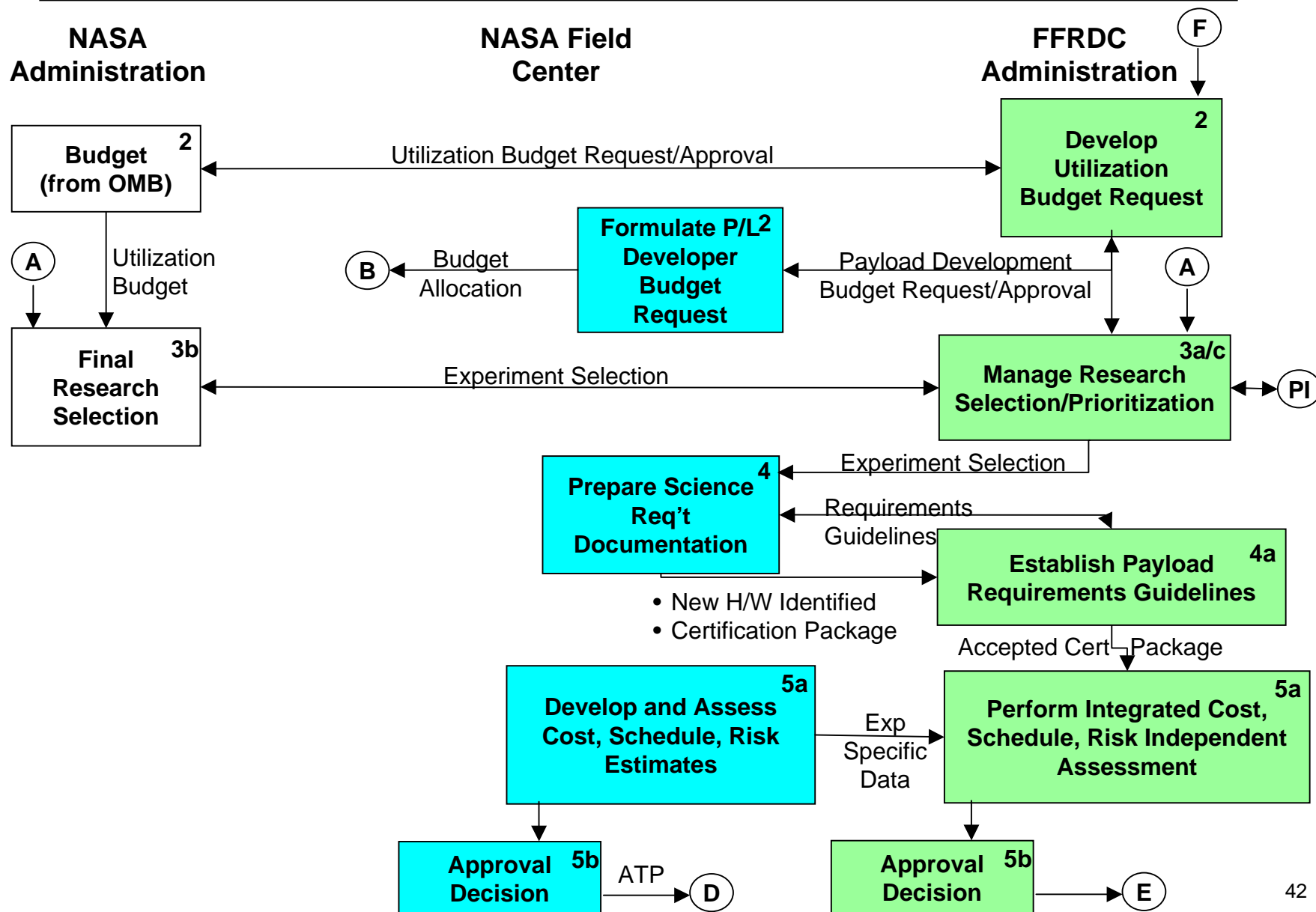


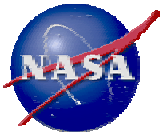
# ISS FFRDC Functional Flow



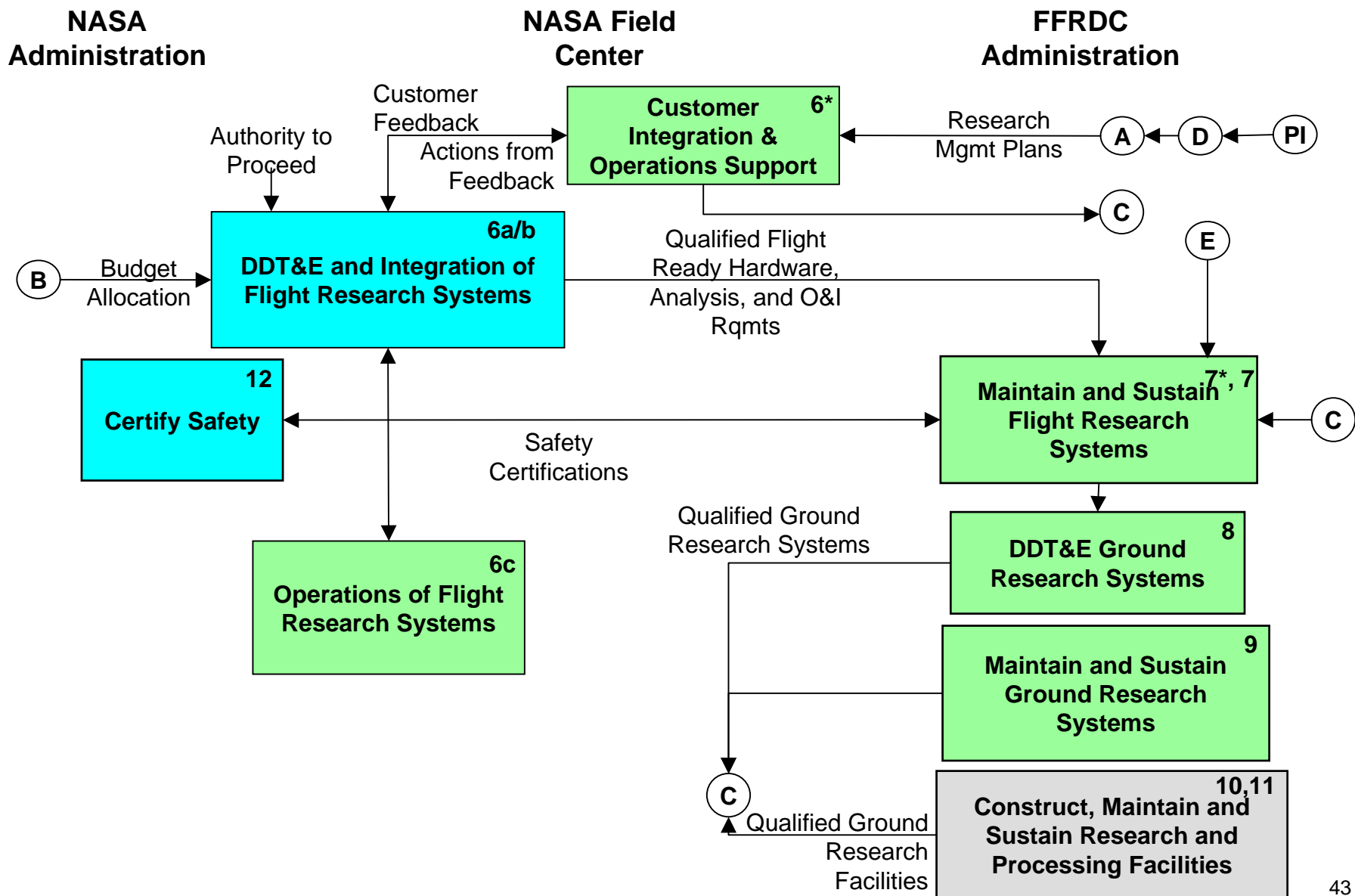


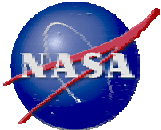
# ISS FFRDC Functional Flow, cont'd





# ISS FFRDC Functional Flow, cont'd



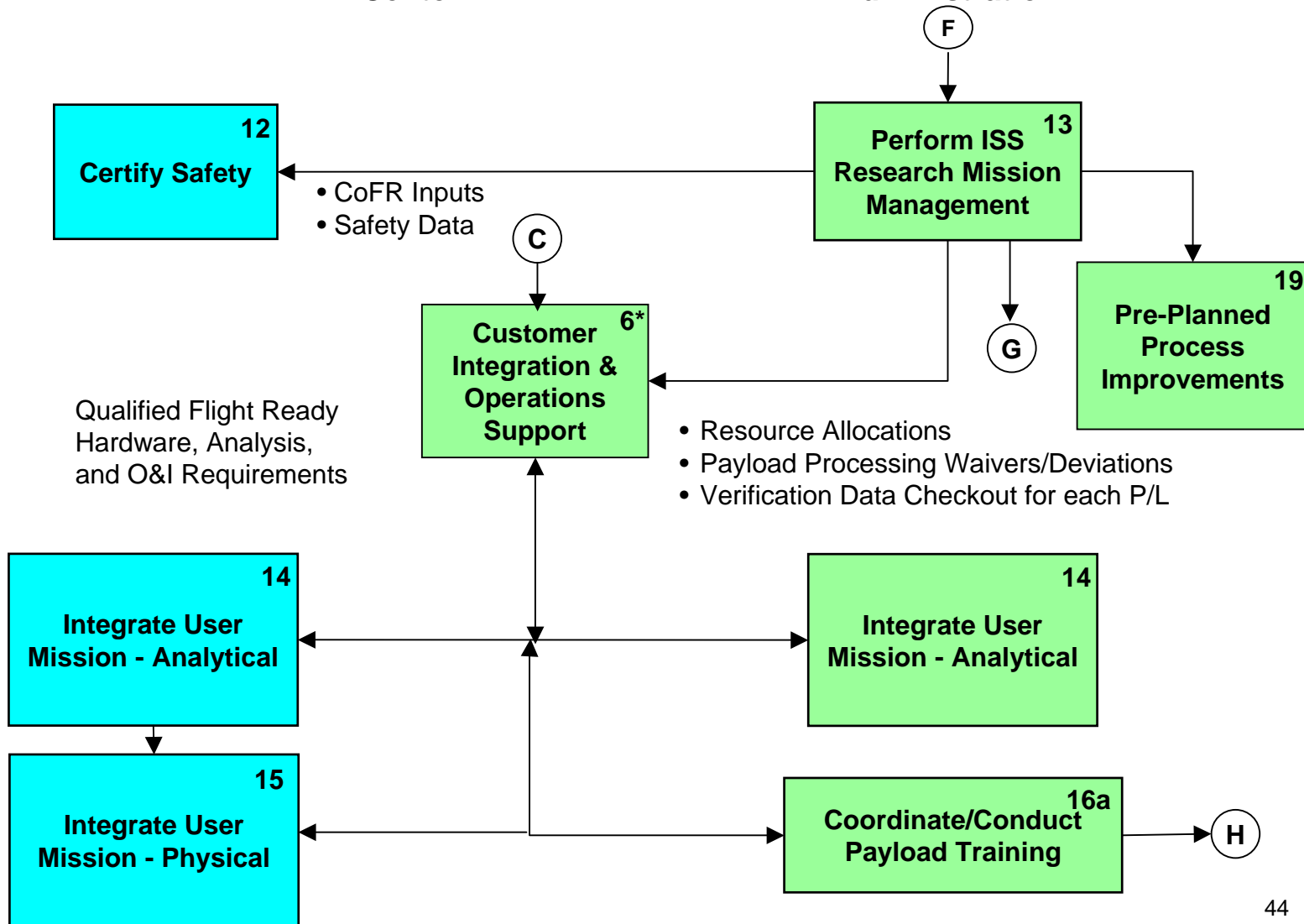


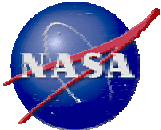
# ISS FFRDC Functional Flow, cont'd

NASA  
Administration

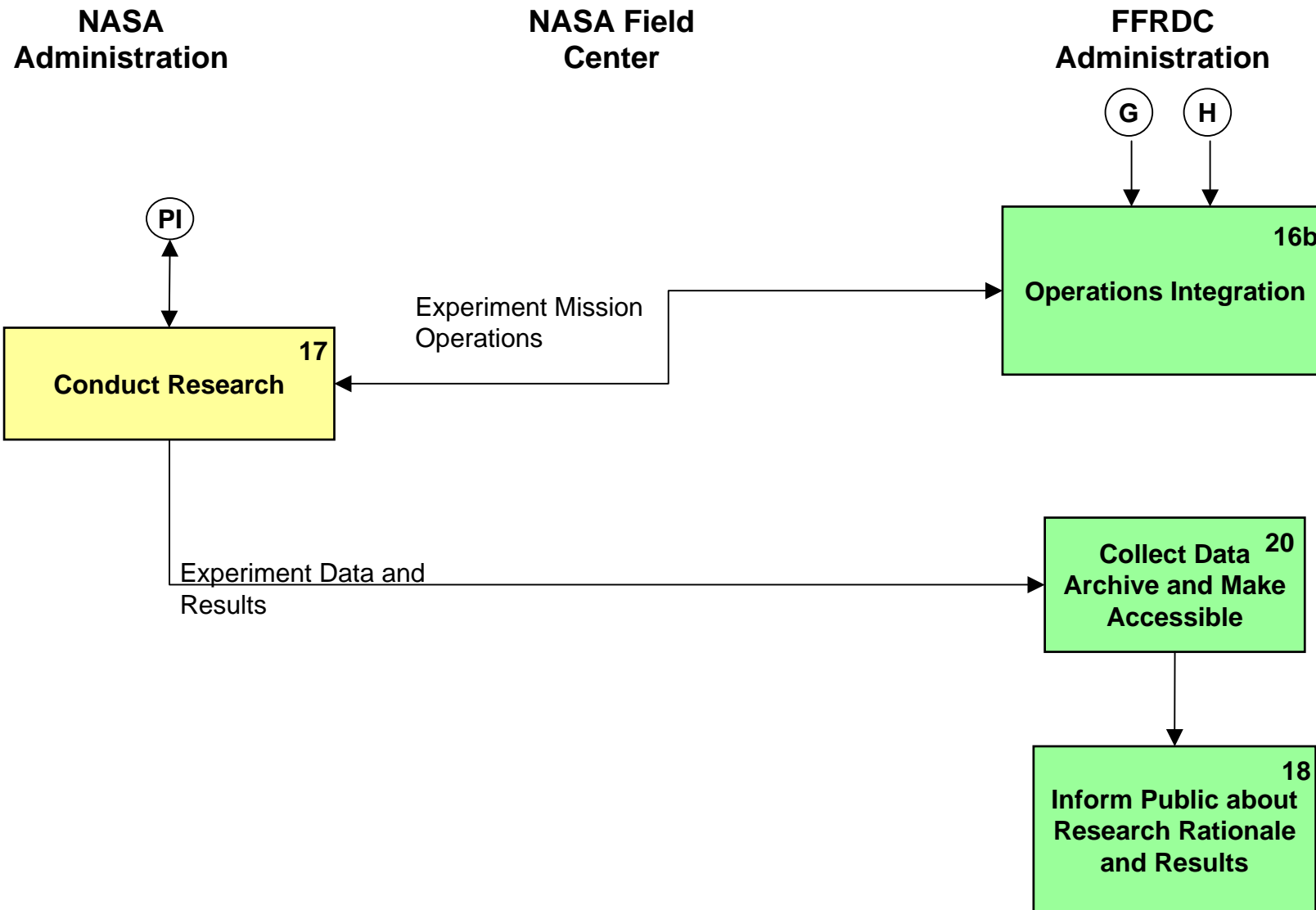
NASA Field  
Center

FFRDC  
Administration





# ISS FFRDC Functional Flow, cont'd





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# Transition Strategy

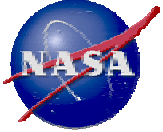


# ISS FFRDC Transition Strategy

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## Establishment Phase

- a. Need for NASA to give authority to proceed with ISS FFRDC.
- b. Need to obtain necessary budget to support an ISS FFRDC.
- c. Need to obtain approval from OSTP.
- d. Determine acquisition approach– sole source or competitive.
  - 14. Need to establish expertise; no one existing single entity can best meet science, technology, and commercial needs.
  - 15. Sole source may give ability to select “the best,” but appears consortium is needed and entities must be willing to “partner.”
  - 16. Sole source permits early start date.
  - 17. Competition appears to be better approach
    - 14. RFI would allow private sector to pull teams together
    - 15. Get creative ideas from private sector
    - 16. Private sector looking for a competition.
    - 17. Influence teams thru evaluation criteria



# ISS FFRDC Transition Strategy, cont'd

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## Transition Phase considerations

6. Give the ISS FFRDC the necessary critical mass of initial of functions to become a viable entity
7. Allowing for the ability to ramp up functional composition
8. Emphasis given to those functions requiring interface with customer
9. Quickly involved FFRDC in those areas that are perceived to be broken, (e.g., outreach)
10. Involved ISS FFRDC in management early on
11. Transitioned engineering functions more slowly and only where user interface required
12. Ensured that ISS FFRDC has ability (expertise and bargaining leverage) to manage contractors before transitioning certain contracts
13. Tailor transition of functions to the FFRDC while accounting for existing contracts with NASA
  - a. Considered effect on civil servant workforce



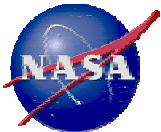


# ISS FFRDC Transition Strategy, cont'd

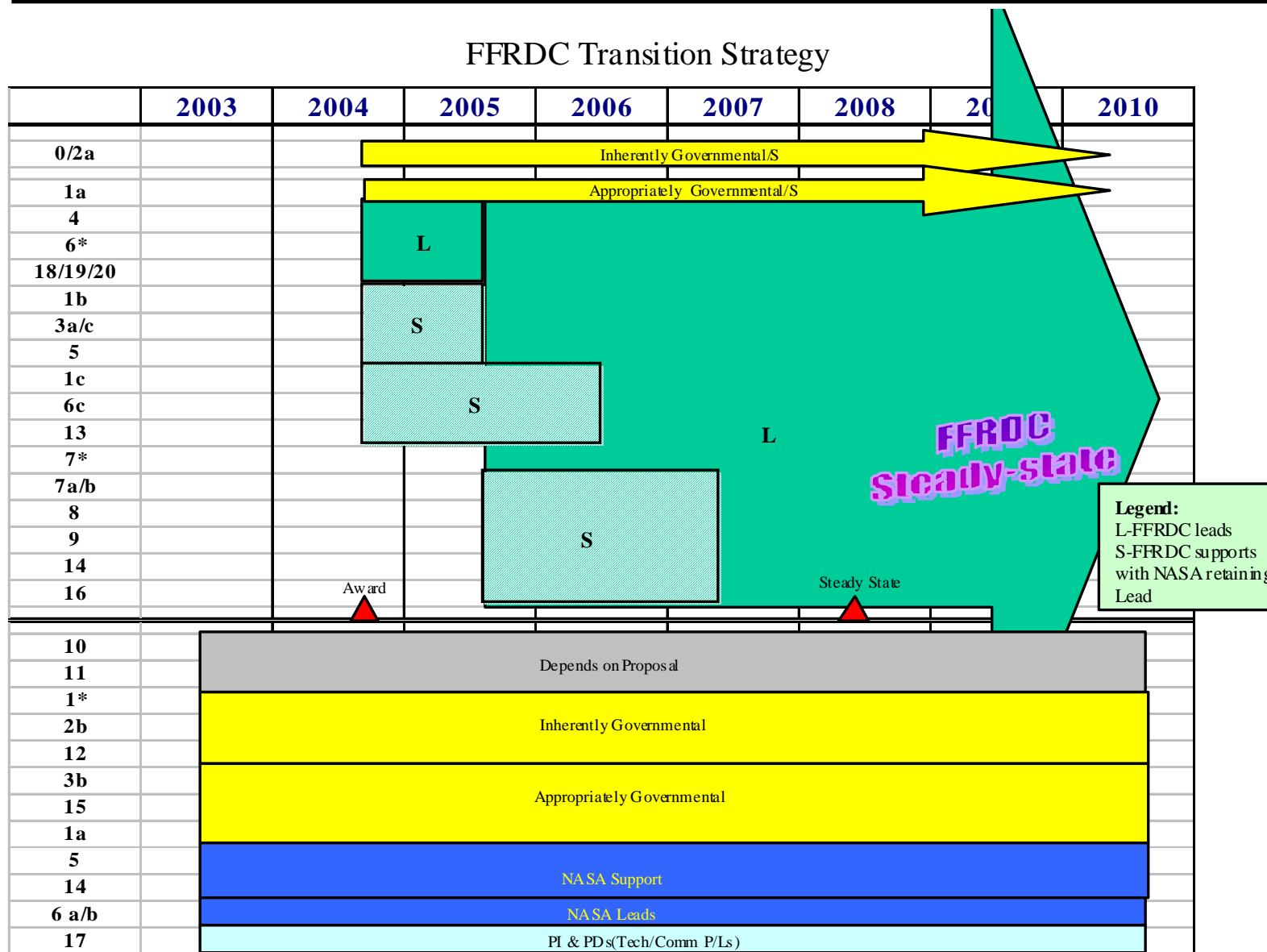
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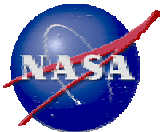
## Transition Phase considerations

- Will transition functions from NASA to the ISS FFRDC based on successful performance as determined by a Performance Evaluation Board
- Ultimate end state effected transition schedule
- Establish IP MOU's
- Additional transition considerations should include:
  - Consider effect on Center competencies
  - Formation of NGO dovetailing with assembly sequence
  - When the amount of resources needed for NGO warrant formation now. If not now, then when.
- Assumption made regarding FTE allocations
  - Assumed no civil servant reduction in the first year.



# ISS FFRDC Option Transition Strategy





# ISS FFRDC Transition Strategy

	2004	2005	2006	2007	2008	2009
<b>Functions</b>						
<b>0 Defining and Implementing Policy and Strategic Plans</b>	I/S (10%)	I/S (10%)	I/S (10%)	I/S (10%)	I/S (10%)	I/S (10%)
<b>1* Code U Contract Oversight of FFRDC</b>	I	I	I	I	I	I
<b>1 Management of Research Utilization</b>						
a Implement Strategic Plans	S (50%)	S (50%)	S (50%)	S (50%)	S (50%)	S (50%)
b Manage Research Programs	S (50%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
c Manage Integrated Research Utilization	S (50%)	S (75%)	L (100%)	L (100%)	L (100%)	L (100%)
<b>2 Preparing and Allocating Budgets</b>						
a Budget Formulation, Justifications	I/S (50%)	I/S (75%)	I/S (75%)	I/S (75%)	I/S (75%)	I/S (75%)
b Budget Execution	I	I	I	I	I	I
<b>3 Selecting and Prioritizing Research</b>						
a Managing selection process	S (50%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
<b>b Selection</b>	A	A	A	A	A	A
c Prioritizing selections	S (50%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
<b>4 Establishing Payload/Experiment Req &amp; Feasibility</b>						
a Research Requirements	L (10%)	L (10%)	L (10%)	L (10%)	L (10%)	L (10%)
b Engineering Concepts, Development, & Hardware Assessments	L (10%)	L (10%)	L (10%)	L (10%)	L (10%)	L (10%)
<b>5 Developing Cost, Schedule, and Risk Assessments</b>						
a Perform Cost, Schedule, Risk Management Assessment	S (25%)	L (25%)	L (25%)	L (25%)	L (25%)	L (25%)
b Authority to Proceed (Lead for reuse of Sustaining Hardware only)	S (25%)	L (50%)	L (50%)	L (50%)	L (50%)	L (50%)
<b>6 Developing and Qualifying Flight Research Systems</b>						
* Customer Integration and Ops Supt Reps	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
a DDT&E						
b Subrack Integration						
c Operations	S (50%)	S (50%)	L (50%)	L (50%)	L (50%)	L (50%)
<b>7 Maintaining and Sustaining Flight Research Systems</b>						
* Project Management/Customer Integration and Ops Supt Reps	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
a DDT&E		S (50%)	S (75%)	L (100%)	L (100%)	L (100%)
b Operations		S (50%)	S (75%)	L (100%)	L (100%)	L (100%)
		S (50%)	S (50%)	L (100%)	L (100%)	L (100%)
<b>8 Developing Ground Systems</b>						
<b>9 Maintaining &amp; Sustaining Ground Systems</b>						
a Identify changes/upgrades to Research Flight Systems	S (50%)	S (50%)	L (100%)	L (100%)	L (100%)	L (100%)
b Maintain & Sustain Research Ground Systems	S (50%)	S (50%)	L (100%)	L (100%)	L (100%)	L (100%)



# ISS FFRDC Transition Strategy

	2004	2005	2006	2007	2008	2009
10 Constructing Ground Facilities						
11 Maintaining Ground Facilities						
12 Certifying Safety of Research Flight & Ground Systems	I	I	I	I	I	I
13 Managing Missions and Allocating Services						
a Advocacy, Manifesting & Resource Allocations	S (50%)	S (75%)	L (100%)	L (100%)	L (100%)	L (100%)
b ISS Research Mission Management	S (50%)	S (75%)	L (100%)	L (100%)	L (100%)	L (100%)
14 Integrating User Missions - Analytical						
a Payload Engineering Integration		S (50%)	S (50%)	L (90%)	L (90%)	L (90%)
b Payload Software Integration & Flight Production		S (50%)	S (50%)	L (90%)	L (90%)	L (90%)
15 Integrating User Missions - Physical	A	A	A	A	A	A
16 Integrating User Missions - Operational						
a Payload Training		S (50%)	S (75%)	L (100%)	L (100%)	L (100%)
b Operations Integration		S (50%)	S (75%)	L (100%)	L (100%)	L (100%)
17 Conducting Research & Analysis & Disseminating Results	PI	PI	PI	PI	PI	PI
18 Educating & Reaching Out to the Public (including industry)						
a Management & Control	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
b Disseminate, Communicate & Support results to ISS customers	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
19 Recommending ISS Pre-Planned Product Improvements	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)
20 Managing Archival of Research Samples, Data, and Results	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)	L (100%)

Inherently or Appropriately Governmental

I/A

ISS FFRDC Supports (% supported)

S (50%)

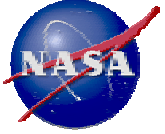
ISS FFRDC Leads (% lead)

L (100%)

Principal Investigator

PI

**Further assessment of the percentage allocation of work associated with Functions 14 & 16 must be completed to address ISS Vehicle interface Safety and Certification of Flight Readiness (CoFR) issues.**



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# Option Specific Strategies



# ISS FFRDC Workforce and Budget Strategy

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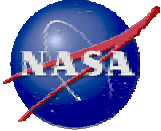
- Civil servants remain first year that the ISS FFRDC begins to supports with the exception of Functions 18, 19 and 20 where ISS FFRDC takes the lead in the first year. (Few civil servants are associated with Functions 18,19 & 20.)
- Use of IPAs are part of the transition policy and will:
  - Provide the ISS FFRDC with expertise initially
  - Ease the effect on the civil service workforce and
  - Decrease the amount of overlap during start up.
  - Plan assumes that 20 FTEs will be on IPA's for Functions 6\* and 7\*
- ISS FFRDC leads certain Functions without taking 100% of the FTEs. For example the ISS FFRDC leads Function 4 with only 10% of FTEs so the Centers can retain certain functions associated with payload development.
- Functions transition over a period of three years.
- Existing contractors do not transition to the ISS FFRDC until the ISS FFRDC assumes a lead role.



# ISS FFRDC Workforce and Budget Strategy, cont'd

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- Assume existing contractors will not be an additional cost since they are part of the baseline budget.
- ISS FFRDC will establish Partnership Agreements with the Centers to complete function where some FTEs remain with NASA.
- Assume overhead will be 20% of FTEs for the ISS FFRDC.
- Question validity of some of the FTE numbers reported in current baseline.
- For estimating purposes, assume \$150K per FTE.
- Represents worse case because:
  - Numbers do not reflect all reductions in FTEs due to future continuous improvement or efficiencies the ISS FFRDC may propose.
  - Civil servant numbers do not reflect full cost, but all contractor and ISS FFRDC numbers reflect full cost.

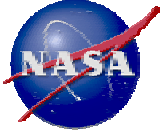


# ISS FFRDC Competencies Strategy

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- **NASA will retain many of the responsibilities for PD as reflected in functions 4, 5 & 6 to retain competencies.**
  - ISS FFRDC will lead/manage function 4 with 25% of the FTEs and will enter into partnering agreement with Center to complete this function.
  - ISS FFRDC will lead function 5 with 50% of the FTEs. FFRDC will provide the ISS wrap and Centers will provide the estimate flowing out function 4. This function will be addressed in the partnering agreement with Centers.
  - The centers will retain the majority FTEs associated with function 6.
- **50% of the FTEs for customer integration and ops support representative (6\* & 7\*) will be IPA's.**
- **NASA will retain responsibilities associated with the vehicle and safety found in the following functions:**
  - Functions 1a, 12, 14 & 15
- **Center do not lose any competencies regarding functions 0, 2, 3b, 12, 15 & 17 since these remain with NASA.**
- **Centers can no longer rely on a function for core competencies when the ISS FFRDC assumes lead with 100% FTEs.**





# ISS FFRDC Contracts Strategy

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- Transition schedule does not require terminating any existing contract.
- May make use of ID/IQ contracts; however, to facilitate transition.
  - Some of the current contracts are ID/IQ.
  - Good method to use in options when bridging contracts.
- Many of the existing contracts will expire prior to planned transition.
  - Centers may need to write bridge contracts.
  - Bridge contracts must contain options that could accommodate a later transition in the event that:
    - Ramp up takes longer.
    - The Government retains part of the effort under contract.



# ISS FFRDC Contracts Strategy, cont'd

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- ISS FFRDC cannot compete against the private sector, but can contract with private sector for goods and services necessary to meet mission or purpose.
  - Enables the ISS FFRDC to assume management of many of the contracts that are currently part of the ISS utilization process.
  - Transition considered whether the ISS FFRDC has ability (expertise and bargaining leverage) to manage contractors before transfer occurs.
  - Anticipated that most of the for profit involvement will be as a subcontract to ISS FFRDC, creating a firewall for potential conflicts of interest.
- Assume that ISS FFRDC work currently under contract will continue to be performed by the private sector as a subcontractor to the FFRDC.



# ISS FFRDC Facilities Strategy

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- For functions 10 & 11, Centers provide input for the list of the facilities which the ISS FFRDC may elect to use:
  - Would include dedicated and multi-user facilities.
  - Multi-use facility would be available on a noninterference basis.
  - FAR states use is on a rent free basis, but use also must comply with full cost accounting.
- Offerors elect those facilities they wish to use as part of their proposal. This election will not increase price of proposals.
- Offerors also can propose to build new facilities, but this would increase the price of the proposal.
- Existing facilities elected for use by the ISS FFRDC is then listed in the sponsoring agreement.
- Anticipated that offerors will elect to use all of the existing facilities NASA makes available for use.
- List of available facilities may drive the ISS FFRDC to be geographically dispersed given the various locations of the facilities.



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# Option Specific Outcomes

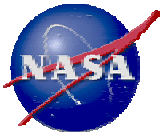


# ISS FFRDC Option Goals Assessment

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The FFRDC has the potential to:

- Ensure the vision, mission, and strategy for ISS utilization includes the users' perspective by having the FFRDC be a member of the SSUB.
- Better align research prioritization and manifesting/flight planning to the needs of NASA while increasing possibility of success by giving the FFRDC leadership of integrated research utilization and manifesting.
- Standardize the selection process, where appropriate, and streamline/shorten end-to-end processing time by giving the FFRDC management of the selection process and prioritization.
- Eliminate the cumbersome and daunting organizational structure and will make the process more user friendly by creating the position of Customer Integration and Operations Support Representative to work every users.
- Eliminate existing organizational barriers by having the FFRDC standardize utilization management practices, establish clear lines of authority, and have a single point of entry for all users.
- Enhance advocacy and outreach to promote the greater use of ISS though the FFRDC's academic affiliation coupled with its overarching mission to represent the entire S/T/C user community.



# ISS FFRDC Functional Outcome

## 0) Define, Develop and Implement Policy and Strategic Plans

I/S

Member of the SSUB. See Org Chart. Strategic input essential to represent users.

## 1) Management of Research Utilization

### 1\*) Code U Contract Oversight of FFRDC

- a) Establish Research Plans
- b) Manage ISS Research Programs
- c) Manage Integrated Research Utilization

I  
S  
L  
L

### new function

Support implementation of strategic policies and plans. Management of ISS is key. Develops ISS Research Plan.

Assumes management responsibility for ISS Research Programs.

FFRDC needs to control tactical planning to do strategic planning well.

## 2) Preparing and Allocating Budgets

- a) Budget Formulation, Justification
- b) Budget Execution

I/S  
I

FFRDC involved in budget submission to NASA; but can't rep NASA before Congress/OMB

## 3) Selecting and Prioritizing Research

- a) Managing selection process
- b) Selection
- c) Prioritizing selections

L  
A  
L

Coordinates Peer Reviews and Technical Review to recommend best place to conduct research (i.e., ISS, Shuttle, Spacehab, etc.)

1 - Questionable whether final selection should transfer to FFRDC given multiple user base, the expense of building new hardware, and the perceived integrity of the current process. Revisit if most of the users become CI's. Not included in end state.

2 - NASA retains final selection.

## 4) Establishing Payload/Experiment Requirements and Feasibility

- a) Research Requirements
- b) Engineering Concept Development & Hardware Assessments

L  
L

1 - Recognize need for center's to retain competencies and need to have FFRDC focus on management rather than engineering. FFRDC given lead with 10% FTE's for management. Partner with centers for support/90% FTE's. Centers retain Engineering expertise.

2 - This function involves a high degree of interface with user. Need to have as a lead to ensure science requirements properly translated. Giving management to FFRDC aids ability to represent users.



# ISS FFRDC Functional Outcome, cont'd

## 5) Developing Cost, Schedule, and Risk Assessments

a) Perform Cost, Schedule, Risk Management Assessment

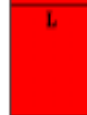


1 - FFRDC's has the lead, but only 25% FTE's. Center's expertise from function 4 provides assessment w/ FFRDC reviewing and approving.

2 - Recognize this could be viewed as an additional layer, but will provide system of checks and balances. Also, enables FFRDC to oversee all users/customers.

3 - Code Y/S payloads have already had this Function performed prior to reaching the ISS Utilization process

b) Authority to Proceed



1 - Assumes that the NGO has authority/funding to manage ISS utilization

2 - Giving FFRDC authority to proceed is ultimate check and balance and management of the process.

3 - This would be an inherently governmental function if NASA retained the funding necessary for the build and only released after authority to proceed.

## 6) Developing and Qualifying Flight Research Systems

### 6\*) Customer Integration and Ops Supt Reps

a) DDT&E



1 - **new function.** New role for customer interface which FFRDC leads. Project management will be IPA'd to FFRDC.

2 Use of the IPA is designed to ensure IPA remains with a project and makes the project manager answerable to FFRDC which represents the users.

b) Subrack Integration



NASA retains lead, Centers have the Engineering expertise.

c) Operations



NASA retains lead, Centers have the Engineering expertise.  
FFRDC will lead with 50% of FTE's due to high level of customer interface.

## 7) Maintaining and Sustaining Flight Research Systems

### 7\*) Project Management/Customer Integration and Ops Supt Reps

a) Identify changes/upgrades to Research Flight Systems



**new function**

1 FFRDC will become responsible for Facilities/ Racks/subpayloads after development is completed in Function 6.

2 May achieve thru subcontractors due to limitation regarding competition with private sector

b) Maintain & Sustain Research Flight Systems



## 8) Developing Ground Systems



May achieve thru subcontractors due to limitation regarding competition with private sector

## 9) Maintaining and Sustaining Ground Systems

a) Identify changes/upgrades to Research Ground Systems

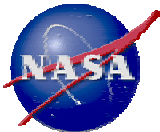


1 - May achieve thru subcontractors due to limitation regarding competition with private sector

2 - Lead given because although engineering involved, users have the most interest in proper maintenance of equipment.

b) Maintain & Sustain Research Ground Systems





# ISS FFRDC Functional Outcome, cont'd

## 10) Constructing Ground Facilities



Depends on proposal by FFRDC. Should have lead if proposes new facilities.

## 11) Maintaining Ground Facilities



1 - See Inventory of Gov't Facilities; FFRDC would be given a choice of Gov't Facilities

2 - FFRDC decides location - something which will influence whether it takes over this function or whether center will do as part of base operations.

3 Unclear whether FFRDC will want to operate facilities as part of operating FFRDC. Difficult to do so when multi-use facilities involved.

## 12) Certifying Safety of Research Flight and Ground Systems



1 - Need insight into policies and procedures. FFRDC would support this function through customer representative in function 6/7\*

2 - FFRDC with lead in 13, 14 & 16, allows it to represent users while NASA with lead in 12 & 15, can focus exclusively on safety and reliability

## 13) Managing Missions and Allocating Services

- a) Advocacy, Manifesting and Resource Allocations
- b) ISS Research Mission Management



1 - The customer rep in function 6\* working for FFRDC, is the key interface

2 - Function key to management of ISS. NASA retains 20% of FTE's in 13(a) and 25% of FTE's in 13(b) due to vehicle interface.

3 Giving lead in 13, 14, & 16 should help correct many of the real/perceived problems expressed by users (multiple interface issues.)

4 As part of transition, centers retain processing of IP payloads, but assume that IP's would request FFRDC assume this responsibility. End state is different if this does not occur.

## 14) Integrating User Mission - Analytical

- a) Payload Engineering Integration
- b) Payload Software Integration and Flight Production



1 - Center retains 30% of FTE's due to vehicle interface.

2 FFRDC should be may able to manage large contracts like a JPL. Comment applies to functions 13, 14 & 16.

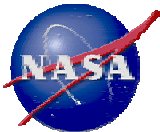
## 15) Integrating User Missions - Physical



1 - The customer rep in function 6/7\* is the key interface for users.

2 - FFRDC with lead in 13, 14 & 16, allows it to represent users while NASA with lead in 12 & 15, can focus exclusively on safety and reliability





# ISS FFRDC Functional Outcome, cont'd

## 16) Integrating User Missions - Operational

a) Payload Training

L

b) Operations Integration

L

1 - The customer rep in function 6/7\* is the key interface for users.

## 17) Conducting Research & Analysis and Disseminating Results

PI

PI or PD wrt Technology/ Commercial P/Ls.

## 18) Educating and Reaching Out to the Public (including industry)

a) Management and Control

L

b) Disseminate, Communicate & Support results to ISS customers

L

## 19) Recommending ISS Pre-Planned Product Improvements

L

## 20) Managing Archival of Research Samples, Data, and Results

L

Inherently or Appropriately Governmental



Science/Technology/Commercialization Management and Leadership



Sustaining Payloads and/or Facilities



Developing Payloads and/or Facilities



Integrating User Mission – Analytical



Integrating User Missions - Operational

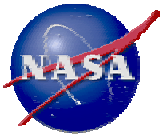


Independent of Functional Allocation



Applicable to the Principal Investigator



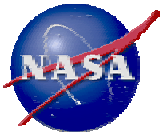


# ISS FFRDC Option

## Workforce Assessment

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- The ISS FFRDC, if initially established in FY04 as outlined in the model, would have a total workforce (FFRDC personnel and associated subcontractors) of approximately 475 by mid- FY05
  - Sufficient to establish a foundation for development of a viable FFRDC to manage ISS utilization
  - Approximately 200 out of 589 current NASA civil servants would be affected
- By the end of FY07 the FFRDC would grow towards a total workforce of approximately 1,700.
  - This forecasted ROM would be sufficient to attract a range of potential bidders
  - In its projected end-state configuration, the ISS FFRDC as modeled within this study would affect approximately 300 current civil servants



# ISS FFRDC Workforce Outcome

FUNCTION	FY	CS to NGO	IPA to NGO	Cont. to NGO	Additional Workforce	Infrastruct (total only)	Total NGO
0	FY03	0	0	0	0	-	0
	FY05	1	0	0	0	-	1
	FY07	1	0	0	0	-	1
1	FY03	0	0	0	0	-	0
	FY05	13	0	9	0	-	22
	FY07	16	0	18	0	-	34
2	FY03	0	0	0	0	-	0
	FY05	5	0	0	0	-	5
	FY07	8	0	0	0	-	8
3	FY03	0	0	0	0	-	0
	FY05	2	0	0	0	-	2
	FY07	2	0	0	0	-	2
4	FY03	0	0	0	0	-	0
	FY05	2	0	67	0	-	69
	FY07	2	0	66	0	-	68
5	FY03	0	0	0	0	-	0
	FY05	18	0	8	0	-	26
	FY07	19	0	20	0	-	39
6	FY03	0	0	0	0	-	0
	FY05	7	11	0	11	-	29
	FY07	8	9	50	9	-	75
7	FY03	0	0	0	0	-	0
	FY05	16	7	0	7	-	30
	FY07	32	9	157	9	-	207
8	FY03	0	0	0	0	-	0
	FY05	10	0	0	0	-	10
	FY07	20	0	31	0	-	51
9	FY03	0	0	0	0	-	0
	FY05	25	0	0	0	-	25
	FY07	42	0	169	0	-	211
10	FY03	0	0	0	0	-	0
	FY05	0	0	0	0	-	0
	FY07	0	0	0	0	-	0

FUNCTION	FY	CS to NGO	IPA to NGO	Cont. to NGO	Additional Workforce	Infrastruct (total only)	Total NGO
11	FY03	0	0	0	0	-	0
	FY05	0	0	0	0	-	0
	FY07	0	0	0	0	-	0
12	FY03	0	0	0	0	-	0
	FY05	0	0	0	0	-	0
	FY07	0	0	0	0	-	0
13	FY03	0	0	0	0	-	0
	FY05	26	0	40	0	-	66
	FY07	29	0	77	0	-	106
14	FY03	0	0	0	0	-	0
	FY05	23	0	0	0	-	23
	FY07	41	0	192	0	-	233
15	FY03	0	0	0	0	-	0
	FY05	0	0	0	0	-	0
	FY07	0	0	0	0	-	0
16	FY03	0	0	0	0	-	0
	FY05	29	0	0	0	-	29
	FY07	52	0	269	0	-	321
17	FY03	0	0	0	0	-	0
	FY05	0	0	0	0	-	0
	FY07	0	0	0	0	-	0
18	FY03	0	0	0	0	-	0
	FY05	12	0	17	0	-	29
	FY07	14	0	18	0	-	32
19	FY03	0	0	0	0	-	0
	FY05	2	0	4	0	-	6
	FY07	2	0	5	0	-	7
20	FY03	0	0	0	0	-	0
	FY05	7	0	22	0	-	29
	FY07	9	0	24	0	-	33
Total	FY03	0	0	0	0	0	0
	FY05	196	18	167	18	80	479
	FY07	296	18	1096	17	285	1712



# ISS FFRDC Option

## Competencies Assessment

- Based on the Functional Allocations associated with this particular ISS FFRDC Option the potential exists for an impact to a number of competencies at each Center.
- A detailed assessment of the impact to each Center has been planned as a follow-on activity.
- A preliminary assessment of the impact at each of the associated Code U Centers, based on subject matter expert opinion of Center provided data, is:

Center	Functional Area					
	S/T/C Leadership	Develop Payloads	Sustain Payloads	Mission Management	Integration - Analytical	Integration - Operational
ARC						
GRC						
JSC						
MSFC						



Potentially High Impact to a Center Competency

Potentially Medium Impact to a Center Competency

Potentially No/Low Impact to a Center Competency



# FFRDC COMPETENCY IMPACT SUMMARY

Functions	FY07	Civil Service Competency Priority Submitted by Centers					Civil Service Competency Impacts at ISS FFRDC End-State				
		ARC	GRC	JSC	MSFC	HQ	ARC	GRC	JSC	MSFC	HQ
<b>0 Defining and Implementing Policy and Strategic Plans</b>											
1 Management of Research Utilization											
a Implement Strategic Plans											
b Manage Research Programs											
c Manage Integrated Research Utilization											
<b>2 Preparing and Allocating Budgets</b>											
a Budget Formulation, Justifications											
b Budget Execution											
<b>3 Selecting and Prioritizing Research</b>											
a Managing selection process											
b Selection											
c Prioritizing selections											
<b>4 Establishing Payload/Experiment Req &amp; Feasibility</b>											
a Research Requirements											
b Engineering Concepts, Development, & Hardware Assessments											
<b>5 Developing Cost, Schedule, and Risk Assessments</b>											
a Perform Cost, Schedule, Risk Management Assessment											
b Authority to Proceed											
<b>6 Developing and Qualifying Flight Research Systems</b>											
a DDT&E											
b Subrack Integration											
c Operations											
<b>7 Maintaining and Sustaining Flight Research Systems</b>											
a DDT&E											
b Operations											
<b>8 Developing Ground Systems</b>											
<b>9 Maintaining &amp; Sustaining Ground Systems</b>											
a Identify changes/upgrades to Research Flight Systems											
b Maintain & Sustain Research Ground Systems											
<b>10 Constructing Ground Facilities</b>											
<b>11 Maintaining Ground Facilities</b>											
<b>12 Certifying Safety of Research Flight &amp; Ground Systems</b>											
<b>13 Managing Missions and Allocating Services</b>											
a Advocacy, Manifesting & Resource Allocations											
b ISS Research Mission Management											
<b>14 Integrating User Missions - Analytical</b>											
a Payload Engineering Integration											
b Payload Software Integration & Flight Production											
<b>15 Integrating User Missions - Physical</b>											
<b>16 Integrating User Missions - Operational</b>											
a Payload Training											
b Operations Integration											
<b>17 Conducting Research &amp; Analysis &amp; Disseminating Results</b>											
<b>18 Educating &amp; Reaching Out to the Public (including industry)</b>											
a Management & Control											
b Disseminate, Communicate & Support results to ISS customers											
<b>19 Recommending ISS Pre-Planned Product Improvements</b>											
<b>20 Managing Archival of Research Samples, Data, and Results</b>											
FFRDC leads 100% of the function. Centers not be able to retain associated competency gained by performing this function.		Inherently or Appropriately Governmental Functions.					NASA retains lead of these Functions.				
FFRDC leads, however, thru Partnership agreements and IPAs, Centers will support the FFRDC with their continued expertise in these functions, whereby retaining competencies gained by performing these functions.		NASA retains lead of these Functions.					FFRDC Award dependent on whether these Functions transition.				

\* NOTE: HQ (Code U) FTE and Competency Priorities will be identified following discussions with Division Directors

KEY  
High Priority  
Medium Priority  
Low Priority

Potential High Impact to a Center's Competency  
Potential Medium Impact to a Center's Competency  
Potential Low Impact to a Center's Competency



# ISS FFRDC Option Budget Assessment

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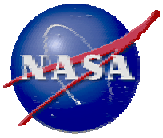
- The ISS FFRDC, if initially established in FY04 as outlined in the model, would have a total ROM budget in FY05 of approximately \$70M.
  - Sufficient to establish a foundation for development of a viable FFRDC
  - Approximately \$55M of NASA's Research Capability Budget and \$15M additional funds for transition and infrastructure costs would be associated with the FFRDC budget
- By the end of FY07 the ISS FFRDC would grow towards a budget of approximately \$280M.
  - This forecasted business growth is sufficient to attract a range of potential bidders
  - Approximately \$235M of NASA's Research Capability Budget and \$45M additional funds for transition and infrastructure costs would be associated with the FFRDC budget



# ISS FFRDC Budget Outcome

FUNCTION	FY	CS to NGO \$M (@ \$150K each) [NO IPAs]	NGO R&D \$M	Additional Workforce \$M (@ \$150K each)	Infrastruct \$M (total only)	Total \$M
0	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.2	0.0	0.0	-	0.2
	FY07	0.2	0.0	0.0	-	0.2
1	FY03	0.0	0.0	0.0	-	0.0
	FY05	2.0	1.4	0.0	-	3.3
	FY07	2.4	2.8	0.0	-	5.2
2	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.8	0.0	0.0	-	0.8
	FY07	1.2	0.0	0.0	-	1.2
3	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.3	0.0	0.0	-	0.3
	FY07	0.3	0.0	0.0	-	0.3
4	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.3	5.9	0.0	-	6.2
	FY07	0.3	16.0	0.0	-	16.3
5	FY03	0.0	0.0	0.0	-	0.0
	FY05	2.7	2.8	0.0	-	5.5
	FY07	2.9	6.7	0.0	-	9.5
6	FY03	0.0	0.0	0.0	-	0.0
	FY05	1.1	0.0	1.7	-	2.7
	FY07	1.2	9.4	1.4	-	12.0
7	FY03	0.0	0.0	0.0	-	0.0
	FY05	2.4	0.0	1.1	-	3.5
	FY07	4.8	37.8	1.4	-	44.0
8	FY03	0.0	0.0	0.0	-	0.0
	FY05	1.5	0.0	0.0	-	1.5
	FY07	3.0	7.6	0.0	-	10.6
9	FY03	0.0	0.0	0.0	-	0.0
	FY05	3.8	0.0	0.0	-	3.8
	FY07	6.3	8.8	0.0	-	15.1
10	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.0	0.0	0.0	-	0.0
	FY07	0.0	0.0	0.0	-	0.0

FUNCTION	FY	CS to NGO \$M (@ \$150K each) [NO IPAs]	NGO R&D \$M	Additional Workforce \$M (@ \$150K each)	Infrastruct \$M (total only)	Total \$M
11	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.0	0.0	0.0	-	0.0
	FY07	0.0	0.0	0.0	-	0.0
12	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.0	0.0	0.0	-	0.0
	FY07	0.0	0.0	0.0	-	0.0
13	FY03	0.0	0.0	0.0	-	0.0
	FY05	3.9	7.2	0.0	-	11.1
	FY07	4.4	14.4	0.0	-	18.7
14	FY03	0.0	0.0	0.0	-	0.0
	FY05	3.5	0.0	0.0	-	3.5
	FY07	6.2	35.2	0.0	-	41.3
15	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.0	0.0	0.0	-	0.0
	FY07	0.0	0.0	0.0	-	0.0
16	FY03	0.0	0.0	0.0	-	0.0
	FY05	4.4	0.0	0.0	-	4.4
	FY07	7.8	45.5	0.0	-	53.3
17	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.0	0.0	0.0	-	0.0
	FY07	0.0	0.0	0.0	-	0.0
18	FY03	0.0	0.0	0.0	-	0.0
	FY05	1.8	3.6	0.0	-	5.4
	FY07	2.1	3.9	0.0	-	6.0
19	FY03	0.0	0.0	0.0	-	0.0
	FY05	0.3	0.8	0.0	-	1.1
	FY07	0.3	0.8	0.0	-	1.1
20	FY03	0.0	0.0	0.0	-	0.0
	FY05	1.1	2.7	0.0	-	3.8
	FY07	1.4	3.0	0.0	-	4.3
Total	FY03	0.0	0.0	0.0		0.0
	FY05	29.7	24.4	2.7	12.0	68.8
	FY07	44.6	191.9	2.7	42.8	281.9

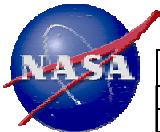


# ISS FFRDC Option Contract Assessment

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- **An assessment of contracts that support ISS Utilization was thought beneficial in determining an effect transition strategy**
- **As of July 2002, the following data from all existing contracts was compiled:**
  - Contract numbers
  - Names of contractors
  - Dates of contract expiration
  - Functions covered by each contract
- **Recognize this data requires continuous updating to reflect changes in contract status, e.g., award of new contracts, exercise of options, but the initial data was sufficient for the purposes of this study**

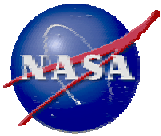




FFRDC CONTRACT STRATEGY SUMMARY																									
OWNER	CONTRACTOR NAME	CONTRACT NUMBER	END DATE	CONTRACT EXTENSIONS	FUNCTIONS																				
					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LEVEL I - HQ																									
HQ/CODE U	Global Science & Technology, Inc	NASQ-00017	Feb-05					X		X															
LEVEL II - RPOs																									
JSC/SSPO	USA	NAS9-20000	Sep-02																X	X		X			
JSC/SSPO	BOEING	NAS15-10000	Dec-03															X		X				X	
JSC/SSPO	Lockheed-Martin	NAS9-19100	Dec-03			X													X				X		
JSC/SSPO	SAIC	NAS9-00086	Sep-02																X				X		
JSC/CODE M	SAIC	NAS9-00086	Sep-02																X				X		
JSC/Life Sci	Lockheed-Martin (SEAT)	NAS9-19100	Dec-03						X		X	X	X	X	X	X	X	X	X	X	X		X		X
JSC/Life Sci	NSBRI	NCC9-58	Sep-02					X		X			X	X								X	X		
MSFC/PLs Ofc	Boeing (Payload Utilization)	NAS9-50000	Sep-04							X	X	X						X	X	X		X			X
MSFC/PLs Ofc	Lockheed (Utilization & Mission Service)	NAS9-44000	Sep-03							X			X	X	X	X	X	X		X				X	
MSFC/RPO/MRP	Computer Systems Technology (CST)	NAS8-00060	Nov-02									X											X		X
MSFC/RPO/MRP	Infinity Technology	NAS8-00139	Feb-03																				X		
MSFC/RPO	Cherokee Nation Industries, Inc.	NAS8-01058	Jan-06			X													X	X					
MSFC/RPO	Teledyne-Brown Engineering	GS-35F-504/ H33158D	Jun-02																	X		X			
MSFC/RPO	Computer Systems Technology (CST)	NAS8-00060	Nov-02																X						
MSFC/RPO/SPD	bd Systems	NAS8-99005	Apr-03																X						
MSFC/RPO/SPD	CST	NAS8-00060	Nov-02																				X		
MSFC/RPO/SPD	Boeing	NAS8-50000	Sep-04								X														
MSFC/RPO/SPD	Wisconsin Center for Robotics	NCC8-241	Oct-02				X	X	X	X	X	X	X	X									X		X
MSFC/RPO/SPD	Center for Bioserve Space Technologies - Univ of Colorado	NCC8-242	Oct-02				X	X	X	X	X	X	X	X									X		X
MSFC/RPO/SPD	Center for Biophysical Sciences and Research (UAB)	NCC8-246	Oct-02				X	X	X	X	X	X	X	X									X		X
MSFC/RPO/SPD	Solidification Design Center (Auburn Univ)	NCC8-237	Oct-02				X	X	X	X	X	X	X	X									X		X
MSFC/RPO/SPD	Consortium for Material Development in Space (UAH)	NCC8-243	Oct-02				X	X	X	X	X	X	X	X									X		X
MSFC/RPO/SPD	Center for Commercial Applications of Combustions in Space - Colorado School of Mines	NCC8-238	Oct-02				X	X	X	X	X	X	X	X									X		X
MSFC/RPO/SPD	Center for Advanced Microgravity Materials Processing - Northeastern University	NCC8-244	Oct-02				X	X	X	X	X	X	X	X									X		X
MSFC/RPO/SPD	Texas Center for Superconductivity and Advanced Materials - Univ of Houston (Old name: Space Vacuum Epitaxy Center)	NCC8-239	Oct-02				X	X	X	X			X	X									X		X
MSFC/RPO/SPD	Center for Commercial Development of Space Power and Advanced Electronics - Auburn Univ	NCC8-237	Oct-02				X	X	X	X			X	X									X		X
MSFC/RPO/SPD	Center for Satellite and Hybrid Communications Networks - Texas A&M	NCC8-235	Oct-02				X	X	X	X			X	X									X		X



OWNER	CONTRACTOR NAME	CONTRACT NUMBER	END DATE	CONTRACT EXTENSIONS	FUNCTIONS																					
					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
				4 1-Yr Ext to FY09																						
KSC	Dynamac (Life Sciences Support)	NAS10-02001	Sep-05				X		X	X	X	X	X	X		X	X			X						
KSC	Boeing	NAS10-11400	Jun-02	In Competition			X			X				X	X		X	X		X						
ARC/FUND BIO	Lockheed-Martin	NAS2-1463	Apr-02																	X						
LEVEL III - CENTERS																										
MSFC/MRP	Hernandez Engineering	NAS8-00179	Nov-02														X									
	Teledyne Brown Engineering	NAS8-00205	Nov-00						X										X		X					
	Pace & Waite	NAS8-40831	Jun-02						X		X	X														
	ASRI (outreach)	NAS8-97330	May-02																					X		
	ASRI (outreach)	NAS8-99006	Mar-02																					X		
	CST	NAS8-98001	May-02							X											X					X
	CSC	NAS8-60000	Oct-02				X			X																
	Boeing (non-MSRF)	NAS8-50000	Sep-04								X															
	AMMSA	NCC8-66	Apr-02						X	X				X	X							X	X		X	
	Cortez	NAS8-97327	Sep-02										X													
	TecMasters	NAS8-98098	Mar-03								X	X														
	Sverdrup - New Number, Jan. 2001	NAS8-00187	Sep-02								X	X							X							
	Pace & Waite	NAS8-01121	Aug-02						X	X	X	X							X							
	TVA	H-28042D	Mar-02							X																
JSC/MRP	Wyle Laboratories	NAS9-97114	Jun-02	Ext in work to 9/02						X	X	X	X	X								X	X		X	
GRC/MRP	ZIN Technologies	NAS3-99154	Dec-04								X	X	X													
	Northop Grumman	NAS3-99155	Apr-05								X	X	X	X					X	X	X					
	NCMRFC (Case Western)	NCC3-544	Jun-07						X	X				X	X							X	X		X	
ARC/FUND BIO	Dichroma (Administrative Support Only)	NAS2-97065	Sep-02				X																			
	Hernandez Engineering	A 61829D	Apr-03															X								
	Orbital Technologies (Hdwe Dev - BPS)	NAS2-97021	Dec-02								X															
	StarShot (Hdwe Dev - AAH)	NAS2-98024	Aug-03								X															
	Payload Systems Inc (Hdwe Dev - CCU)	NAS2-96001	Sep-04								X															
	Orbital Technologies (Hdwe Dev - PRU)	NAS2-80	Sep-07								X															
	Lockheed-Martin	NAS2-1463	Jun-05			X				X	X	X	X			X			X	X	X		X		X	
Functions 0, 2, 12, 15 are inherently or appropriately governmental and pose no contract impact.																										
Functions 10 & 11 are FFRDC proposal dependent and will have to be assessed at time of award.																										
Function 17 remains with NASA and poses no contract impacts.																										
Functions 4, 18, 19, & 20 transfer to the FFRDC at time of award. All associated contracts will need to transitioned to the FFRDC.																										
The remaining functions (1, 3, 5-9, 13-14, & 16) in part or in whole transfer to the FFRDC as lead. Each associated contract will have to be assessed for the most appropriate transition strategy. NASA will retain contract lead until the FFRDC takes a lead role of a function. (See Transition Strategy Chart for timeline.)																										



# ISS FFRDC Option Facilities Assessment

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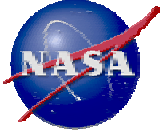
All facility data received by the ISS Utilization Management Concept Development Team is based on initial Field Center input

- It has not been integrated consistently across all Centers and facilities
- It is to be updated under the direction of HQ/Code JX



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# **Option Strengths and Weaknesses**



# ISS FFRDC Strengths

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- Uniquely positioned to bring together the expertise and outlook of government, industry, and academia to solve utilization issues that cannot be solved by any one group alone.
  - **S/T/C Leadership** requires an academic perspective in order to work with and to gain the confidence of the science community.
  - **ISS Utilization Management** requires the performance of integrated engineering and operations functions associated with a Human Rated spacecraft.
- FAR “special relationship” allows the FFRDC to partner with the Centers to enhance and standardize payload development, maintain and sustain existing payload facilities, and provide tactical utilization leadership positioning it to provide strategic planning support at the highest levels.
- The Competition in Contracting Act specifically exempts the establishment and maintenance of FFRDCs from competition allowing for an FFRDC to:
  - Establish a long-term relationship with NASA
  - Attract and retain highly qualified personnel
  - Preserve its familiarity with the needs of NASA
  - Provide a quick response capability



# ISS FFRDC Strengths, cont'd

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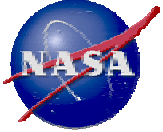
- **The ISS FFRDC contains a number of built in protections to avoid organizational conflicts of interest ensuring the objectivity of the FFRDC, including:**
  - Requirement to be a not-for-profit entity.
  - Requirement to have a specific purpose or mission that is contained in the sponsoring agreement with NASA.
  - Restriction on competition against the private sector, but can contract with the private sector for goods and services necessary to meet its stated mission or purpose.
  - NASA retention of final Selection of Proposals and their associated Grant funding.
  - NASA retention of the Payload Development role with the FFRDC providing standardized Customer Integration and Support services.
  - Prohibition from engaging in “hands on” research, especially given the limited research opportunities on ISS.
- **FAR requirement to review the NASA sponsoring agreement with the FFRDC every five years to determine whether the mission and purpose for the FFRDC still exists.**
- **Pursuant to the FAR, the sponsoring agreement allows the FFRDC to accept work from sources other than NASA.**



# ISS FFRDC Strengths, cont'd

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- **FFRDC model creates a single point of entry for users into the ISS process through the new function of Project Management/Customer Interface.**
  - The customer representative ensures engineering is available to support the bright idea.
  - NASA keeps Payload Development enabling Centers to retain core competencies.
- **The diverse expertise enables FFRDC to be an excellent advocate for the entire S/T/C community.**
  - Leadership of science done by academia
  - Leadership of technology requires engineering proficiency
  - Leadership of commercial requires business acumen.



# ISS FFRDC Weaknesses

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- The transition to the FFRDC would be challenging since it would entail the transition of all of the functions comprising ISS utilization except for those designated as “inherently governmental,” those designated as “appropriately NASA,” and those functions involving payload development.
- FFRDCs have been disfavored because of the potential for abuse due to the sole source nature and the special relationship with sponsoring agency.
- The FFRDC cannot perform inherently governmental functions such as negotiating barter agreement with our International Partners. However, the FFRDC would be in a strong position to implement existing agreements.
- The cost associated with transitioning expertise from inside NASA to an FFRDC is uncertain and may be more expensive because FFRDC is not subject to federal pay schedule.
- The Limitation on the FFRDC to conduct research is perceived as hindering their ability to attract the best and brightest. This restriction, which offsets potential conflict of interests relative to selection, needs to be vetted by academia and industry via an RFI.
- As a geographically dispersed entity, the FFRDC would need to establish a management focal point to ensure clear lines of communication.





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# Legislative Process

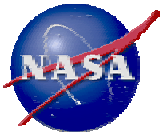


# ISS FFRDC Option

## Proposed Implementation

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- Need for NASA to give authority to proceed with ISS FFRDC.
- Need to obtain necessary budget to support an ISS FFRDC.
- Need to obtain approval from OSTP.
- Determine acquisition approach– sole source or competitive.
  - Need to establish expertise; no one existing single entity can best meet science, technology, and commercial needs.
  - Sole source may give ability to select “the best,” but appears consortium is needed and entities must be willing to “partner.”
  - Sole source permits early start date.
  - Competition appears to be better approach
    - RFI would allow private sector to pull teams together
    - Get creative ideas from private sector
    - Private sector looking for a competition.
    - Influence teams thru evaluation criteria



# ISS FFRDC Option Schedule for Implementation

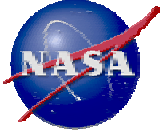
## Federally Funded R&D Center (FFRDC) Milestone Schedule

	2002			2003												2004											
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Administrator Decision and Go-Ahead			▲																								
Notice to Labor Unions				▲																							
Notice to OSTP				▲																							
Draft SOW																											
Draft RFP																											
Draft Implementation Plan to Congress																											
Notice to Congress re: FFRDC & DOD \$								▲																			
Release RFP										▲																	
Receive proposals; Source Selection																											
Contract Start Date																						▲					



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# Summary



# ISS FFRDC Option Summary

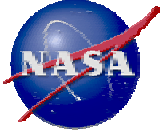
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- Brings together the expertise and outlook of government, industry, and academia necessary to represent the entire ISS user community of S/T/C.
- Will manage the utilization of ISS and not be involved in “hand on” research.
- Has all of the functions necessary to manage ISS utilization while the Centers retain all competencies associated with payload development and vehicle interface.
- Can operate as a strategic/tactical partner with NASA and other federal agencies, including being on the SSUB.
- Creates an office specifically to support customers. This office also will act as the single point of entry for users.
- With its academic affiliation, would be an excellent advocate for all users by promoting the use of ISS and disseminating ISS successes.
- With its built-in protections for organizational conflicts of interest, can better take leadership of the selection process and represent commercial users.



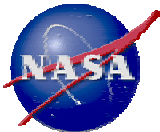
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# Backup



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# **Required Policy Guidance (FAR 35.017)**



# Federal Acquisition Regulations

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## **35.017 Federally Funded Research and Development Centers.**

(a) Policy.

(1) This section sets forth Federal policy regarding the establishment, use, review, and termination of Federally Funded Research and Development Centers (FFRDC's) and related sponsoring agreements.

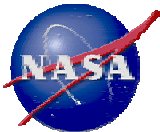
(2) An FFRDC meets some special long-term research or development need which cannot be met as effectively by existing in-house or contractor resources. FFRDC's enable agencies to use private sector

resources to accomplish tasks that are integral to the mission and operation of the sponsoring agency. An FFRDC, in order to discharge its responsibilities to the sponsoring agency, has access, beyond that which is common to the normal contractual relationship, to Government and supplier data, including sensitive and proprietary data, and to employees and facilities. The FFRDC is required to conduct its business in a manner befitting its special relationship with the Government, to operate in the public interest with objectivity and independence, to be free from organizational conflicts of interest, and to have full disclosure of its affairs to the sponsoring agency. It is not the Government's intent that an FFRDC use its privileged information or access to facilities to compete with the private sector. However, an FFRDC may perform work for other than the sponsoring agency under the Economy Act, or other applicable legislation, when the work is not otherwise available from the private sector.

(3) FFRDC's are operated, managed, and/or administered by either a university or consortium of universities, other not-for-profit or nonprofit organization, or an industrial firm, as an autonomous organization or as an identifiable separate operating unit of a parent organization.

(4) Long-term relationships between the Government and FFRDC's are encouraged in order to provide the continuity that will attract high-quality personnel to the FFRDC. This relationship should be of a type to encourage the FFRDC to maintain currency in its field(s) of expertise, maintain its objectivity and independence, preserve its familiarity with the needs of its sponsor(s), and provide a quick response capability.





# Federal Acquisition Regulations, cont'd

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(b) Definitions. As used in this section-

"Nonsponsor" means any other organization, in or outside of the Federal Government, which funds specific work to be performed by the FFRDC and is not a party to the sponsoring agreement.

"Primary sponsor" means the lead agency responsible for managing, administering, or monitoring overall use of the FFRDC under a multiple sponsorship agreement.

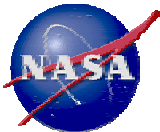
"Sponsor" means the executive agency which manages, administers, monitors, funds, and is responsible for the overall use of an FFRDC. Multiple agency sponsorship is possible as long as one agency agrees to act as the "primary sponsor." In the event of multiple sponsors, "sponsor" refers to the primary sponsor.

## **35.017-1 Sponsoring agreements.**

(a) In order to facilitate a long-term relationship between the Government and an FFRDC, establish the FFRDC's mission, and ensure a periodic reevaluation of the FFRDC, a written agreement of sponsorship between the Government and the FFRDC shall be prepared when the FFRDC is established. The sponsoring agreement may take various forms; it may be included in a contract between the Government and the FFRDC, or in another legal instrument under which an FFRDC accomplishes effort, or it may be in a separate written agreement. Notwithstanding its form, the sponsoring agreement shall be clearly designated as such by the sponsor.

(b) While the specific content of any sponsoring agreement will vary depending on the situation, the agreement shall contain, as a minimum, the requirements of paragraph (c) of this subsection. The requirements for, and the contents of, sponsoring agreements may be as further specified in sponsoring agencies' policies and procedures.

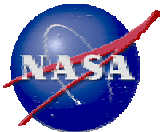
(c) As a minimum, the following requirements must be addressed in either a sponsoring agreement or sponsoring agencies' policies and procedures:



# Federal Acquisition Regulations, cont'd

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- (1) A statement of the purpose and mission of the FFRDC.
- (2) Provisions for the orderly termination or nonrenewal of the agreement, disposal of assets, and settlement of liabilities. The responsibility for capitalization of an FFRDC must be defined in such a manner that ownership of assets may be readily and equitably determined upon termination of the FFRDC's relationship with its sponsor(s).
- (3) A provision for the identification of retained earnings (reserves) and the development of a plan for their use and disposition.
- (4) A prohibition against the FFRDC competing with any non-FFRDC concern in response to a Federal agency request for proposal for other than the operation of an FFRDC. This prohibition is not required to be applied to any parent organization or other subsidiary of the parent organization in its non-FFRDC operations. Requests for information, qualifications or capabilities can be answered unless otherwise restricted by the sponsor.
- (5) A delineation of whether or not the FFRDC may accept work from other than the sponsor(s). If nonsponsor work can be accepted, a delineation of the procedures to be followed, along with any limitations as to the nonsponsors from which work can be accepted (other Federal agencies, State or local governments, nonprofit or profit organizations, etc.).
- (d) The sponsoring agreement or sponsoring agencies' policies and procedures may also contain, as appropriate, other provisions, such as identification of-
  - (1) Any cost elements which will require advance agreement if cost-type contracts are used; and
  - (2) Considerations which will affect negotiation of fees where payment of fees is determined by the sponsor(s) to be appropriate.
- (e) The term of the agreement will not exceed 5 years, but can be renewed, as a result of periodic review, in increments not to exceed 5 years.



# Federal Acquisition Regulations, cont'd

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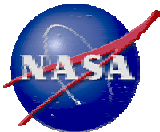
## 35.017-2 Establishing or changing an FFRDC.

To establish an FFRDC, or change its basic purpose and mission, the sponsor shall ensure the following:

- (a) Existing alternative sources for satisfying agency requirements cannot effectively meet the special research or development needs.
- (b) The notices required for publication (see 5.205(b)) are placed as required.
- (c) There is sufficient Government expertise available to adequately and objectively evaluate the work to be performed by the FFRDC.
- (d) The Executive Office of the President, Office of Science and Technology Policy, Washington, DC 20506, is notified.
- (e) Controls are established to ensure that the costs of the services being provided to the Government are reasonable.
- (f) The basic purpose and mission of the FFRDC is stated clearly enough to enable differentiation between work which should be performed by the FFRDC and that which should be performed by non-FFRDC's.
- (g) A reasonable continuity in the level of support to the FFRDC is maintained, consistent with the agency's need for the FFRDC and the terms of the sponsoring agreement.
- (h) The FFRDC is operated, managed, or administered by an autonomous organization or as an identifiably separate operating unit of a parent organization, and is required to operate in the public interest, free from organizational conflict of interest, and to disclose its affairs (as an FFRDC) to the primary sponsor.
- (i) Quantity production or manufacturing is not performed unless authorized by legislation.
- (j) Approval is received from the head of the sponsoring agency.

## 35.017-3 Using an FFRDC.

- (a) All work placed with the FFRDC must be within the purpose, mission, general scope of effort, or special competency of the FFRDC.
- (b) Where the use of the FFRDC by a nonsponsor is permitted by the sponsor, the sponsor shall be responsible for compliance with paragraph (a) of this subsection. The nonsponsoring agency is responsible for making the determination required by 17.502 and providing the documentation required by 17.504(e). When permitted by the sponsor, a Federal agency may contract directly with the FFRDC in which case that Federal agency is responsible for compliance with Part 6.

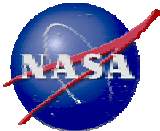


# Federal Acquisition Regulations, cont'd

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## 35.017-4 Reviewing FFRDC's.

- (a) The sponsor, prior to extending the contract or agreement with an FFRDC, shall conduct a comprehensive review of the use and need for the FFRDC. The review will be coordinated with any co-sponsors and may be performed in conjunction with the budget process. If the sponsor determines that its sponsorship is no longer appropriate, it shall apprise other agencies which use the FFRDC of the determination and afford them an opportunity to assume sponsorship.
- (b) Approval to continue or terminate the sponsorship shall rest with the head of the sponsoring agency. This determination shall be based upon the results of the review conducted in accordance with paragraph (c) of this subsection.
- (c) An FFRDC review should include the following:
  - (1) An examination of the sponsor's special technical needs and mission requirements that are performed by the FFRDC to determine if and at what level they continue to exist.
  - (2) Consideration of alternative sources to meet the sponsor's needs.
  - (3) An assessment of the efficiency and effectiveness of the FFRDC in meeting the sponsor's needs, including the FFRDC's ability to maintain its objectivity, independence, quick response capability, currency in its field(s) of expertise, and familiarity with the needs of its sponsor.
  - (4) An assessment of the adequacy of the FFRDC management in ensuring a cost-effective operation.
  - (5) A determination that the criteria for establishing the FFRDC continue to be satisfied and that the sponsoring agreement is in compliance with 35.017-1.



# Federal Acquisition Regulations, cont'd

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## **35.017-5 Terminating an FFRDC.**

When a sponsor's need for the FFRDC no longer exists, the sponsorship may be transferred to one or more Government agencies, if appropriately justified. If the FFRDC is not transferred to another Government agency, it shall be phased out.

## **35.017-6 Master list of FFRDC's.**

The National Science Foundation (NSF) maintains a master Government list of FFRDC's. Primary sponsors will provide information on each FFRDC, including sponsoring agreements, mission statements, funding data, and type of R&D being performed, to the NSF upon its request for such information.

## **35.017-7 Limitation on the creation of new FFRDC's.**

Pursuant to 10 U.S.C. 2367, the Secretary of Defense, the Secretary of the Army, the Secretary of the Navy, the Secretary of the Air Force, the Secretary of Transportation, and the Administrator of the National Aeronautics and Space Administration may not obligate or expend amounts appropriated to the Department of Defense for purposes of operating an FFRDC that was not in existence before June 2, 1986, until-

- (a) The head of the agency submits to Congress a report with respect to such center that describes the purpose, mission, and general scope of effort of the center; and
- (b) A period of 60 days, beginning on the date such report is received by Congress, has elapsed.

\* \* \* \* \*



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# **FFRDC Background Information**



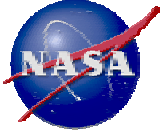
# FFRDC Classification Definitions\*

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- **Research and development laboratories** fill voids where in-house and private sector research and development centers are unable to meet agency core area needs. Specific objectives for these FFRDCs are to: (1) maintain over the long-term a competency in technology areas where the Government cannot rely on in-house or private sector capabilities, and (2) develop and transfer important new technology to the private sector so the Government can benefit from a wider, broader base of expertise. R&D laboratories engage in research programs that emphasize the evolution and demonstration of advanced concepts and technology, and the transfer or transition of technology.
- **Study and analysis centers** deliver independent and objective analyses and advise in core areas important to their sponsors in support of policy development, decision making, alternative approaches, and new ideas on issues of significance.

\*NOTE: The classification definitions as defined by the Department of Defense as contained in the FFRDC Management Plan, effective May 1, 1996, Department of Defense, Director of Defense Research and Engineering, pp. 2-3.





# FFRDC Classification Definitions, cont'd

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- **System engineering and integration centers** provide required support in core areas not available from sponsor's in-house technical and engineering capabilities to ensure that complex systems meet operational requirements. The centers assist with the creation and choice of system concepts and architectures, the specification of technical system and subsystem requirements and interfaces, the development and acquisition of system hardware and software, the testing and verification of performance, the integration of new capabilities, and continuous improvement of system operations and logistics. They often play a critical role in assisting their sponsors in technically formulating, initiating, and evaluating programs and activities undertaken by firms in the for-profit sector.





# Categories of Activities of FFRDCs

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- **Research and Development Laboratories**
  - Ames Laboratory
  - Argonne National Laboratory
  - Brookhaven National Laboratory
  - Center for Advanced Aviation System Development
  - Ernest Orlando Lawrence Berkeley National Laboratory
  - Fermi National Accelerator Laboratory
  - Idaho National Engineering and Environmental Laboratory
  - Institute for Defense Analyses Communications and Computing Federally Funded Research and Development Center
  - Jet Propulsion Laboratory
  - Lawrence Livermore National Laboratory
  - Lincoln Laboratory
  - Los Alamos National Laboratory
  - National Astronomy and Ionosphere Center
  - National Cancer Institute at Frederick
  - National Center for Atmospheric Research



# Categories of Activities of FFRDCs, cont'd

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- **Research and Development Laboratories (continued)**
  - National Optical Astronomy Observatories
  - National Radio Astronomy Observatory
  - National Renewable Energy Laboratory
  - Oak Ridge National Laboratory
  - Pacific Northwest National Laboratory
  - Princeton Plasma Physics Laboratory
  - Sandia National Laboratory
  - Savannah River Technology Center
  - Software Engineering Institute
  - Stanford Linear Accelerator Center
  - Thomas Jefferson National Accelerator Facility



# Categories of Activities of FFRDCs, cont'd

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- **Study and Analysis Centers**
  - Arroyo Center
  - Center for Naval Analyses
  - Center for Nuclear Waste Regulatory Analyses
  - Institute for Defense Analyses Studies and Analysis Federally Funded Research and Development Center
  - National Defense Research Institute
  - Project Air Force
  - The Science and Technology Policy Institute
- **Systems Engineering and Integration Centers**
  - Aerospace Federally Funded Research and Development Center
  - C3I Federally Funded Research and Development Center
  - Internal Revenue Service (IRS) Federally Funded Research and Development Center



# Master Government List of 36 FFRDCs (FY2002)

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The **FFRDC** is in **bold**; the administrator of each FFRDC appears in parentheses.

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## Department of Defense ▲

### Office of the Secretary of Defense

Administered by universities and colleges [1]:

- **Software Engineering Institute[2]:**  
(Carnegie Mellon University), Pittsburgh, PA

Administered by other nonprofit institutions [3]:

- **Institute for Defense Analyses Studies and Analyses Federally Funded Research and Development Center [5]**  
(Institute for Defense Analyses), Alexandria, VA
- **National Defense Research Institute**  
(RAND Corp. [4]), Santa Monica, CA
- **C3I Federally Funded Research & Development Center**  
(MITRE Corp. [6]), Bedford, MA and McLean, VA

### National Security Agency

Administered by other nonprofit institutions [3]:

- **Institute for Defense Analyses Communications and Computing Federally Funded Research and Development Center [5]**  
(Institute for Defense Analyses), Alexandria, VA



# Master Government List of 36 FFRDCs (FY2002)

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## Department of Defense

### Department of the Navy

Administered by other nonprofit institutions [\[3\]](#):

- [Center for Naval Analyses](#)  
(The CNA Corporation), Alexandria, VA

### Department of the Air Force

Administered by universities and colleges [\[1\]](#):

- [Lincoln Laboratory](#)  
(Massachusetts Institute of Technology), Lexington, MA

Administered by other nonprofit institutions [\[3\]](#):

- [Aerospace Federally Funded Research and Development Center](#)  
([The Aerospace Corporation](#)), El Segundo, CA
- [Project Air Force](#)  
(RAND Corp. [\[4\]](#)), Santa Monica, CA

### Department of the Army

Administered by other nonprofit institutions [\[3\]](#):

- [Arroyo Center](#)  
(RAND Corp. [\[4\]](#)), Santa Monica, CA



# Master Government List of 36 FFRDCs (FY2002)

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## Department of Energy [6]

Administered by industrial firms:

- [Idaho National Engineering and Environmental Laboratory](#)  
(Bechtel BWXT Idaho, LLC), Idaho Falls, ID
- [Sandia National Laboratories](#)  
(Sandia Corporation, which is a subsidiary of Lockheed Martin Corp.), Albuquerque, NM
- [Savannah River Technology Center](#)  
([Westinghouse Savannah River Co.](#)), Aiken, SC

Administered by universities and colleges [\[1\]](#):

- [Ames Laboratory](#)  
([Iowa State University of Science and Technology](#)), Ames, IA
- [Argonne National Laboratory](#)  
(University of Chicago), Argonne, IL
- [Ernest Orlando Lawrence Berkeley National Laboratory](#)  
(University of California), Berkeley, CA
- [Fermi National Accelerator Laboratory](#)  
(Universities Research Association, Inc.), Batavia, IL
- [Lawrence Livermore National Laboratory](#)  
(University of California), Livermore, CA



# Master Government List of 36 FFRDCs (FY2002)

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## Department of Energy [6]

- Los Alamos National Laboratory  
(University of California), Los Alamos, NM
- Princeton Plasma Physics Laboratory  
(Princeton University), Princeton, NJ
- Stanford Linear Accelerator Center  
(Leland Stanford, Jr., University), Stanford, CA
- Thomas Jefferson National Accelerator Facility [7]  
(Southeastern Universities Research Association, Inc.), Newport News, VA

Administered by other nonprofit institutions [3]:

- Brookhaven National Laboratory [8]  
(Brookhaven Science Associates, Inc.), Upton, Long Island, NY
- National Renewable Energy Laboratory [9]  
(Midwest Research Institute), Golden, CO
- Oak Ridge National Laboratory [10]  
(UT-Battelle, LLC), Oak Ridge, TN
- Pacific Northwest National Laboratory  
(Battelle Memorial Institute), Richland, WA



# Master Government List of 36 FFRDCs (FY2002)

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## Department of Health and Human Services

### National Institutes of Health

Administered by industrial firms:

- National Cancer Institute at Frederick [11]  
(Science Applications International Corp.; Charles River Laboratories, Inc.; Data Management Services, Inc.), Frederick, MD

## National Aeronautics and Space Administration

Administered by universities and colleges [\[1\]](#):

- Jet Propulsion Laboratory  
(California Institute of Technology), Pasadena, CA

## National Science Foundation

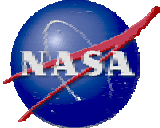
Administered by universities and colleges [\[1\]](#):

- National Astronomy and Ionosphere Center  
(Cornell University), Arecibo, PR
- National Center for Atmospheric Research
- National Optical Astronomy Observatories [12]  
(Association of Universities for Research in Astronomy, Inc.), Tucson, AZ
- National Radio Astronomy Observatory  
(Associated Universities, Inc.), Green Bank, WV

Administered by other nonprofit institutions [\[3\]](#):

- The Science and Technology Policy Institute [13]:  
(RAND Corp. [\[5\]](#)), Washington, D.C.





# Master Government List of 36 FFRDCs (FY2002)

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## Nuclear Regulatory Commission ▲

Administered by other nonprofit institutions [3]:

- Center for Nuclear Waste Regulatory Analyses  
(Southwest Research Institute), San Antonio, TX

## Department of Transportation ▲

Federal Aviation Administration

Administered by other nonprofit institutions [3]:

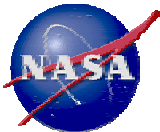
- Center for Advanced Aviation System Development  
(MITRE Corp.), McLean, VA

## Department of Treasury ▲

Internal Revenue Service

Administered by other nonprofit institutions [3]:

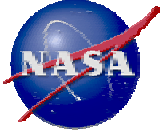
- Internal Revenue Service (IRS) Federally Funded Research and Development Center [14]  
(MITRE Corp.), McLean, VA



# Master Government List of 36 FFRDCs (FY2002)

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- [1] Includes university consortia.
- [2] In June 1997 Office of the Secretary of Defense became the sponsor of the Software Engineering Institute. The previous sponsor was DARPA.
- [3] That is, other than universities and colleges.
- [4] The following portions of the RAND Corporation are FFRDCs: National Defense Research Institute (formerly Defense/Office of the Joint Chiefs of Staff), Project Air Force, the Arroyo Center and the Science and Technology Policy Institute (formerly Critical Technologies Institute). All other agency support to RAND is reported under "other nonprofit institutions excluding FFRDCs."
- [5] Although the Institute for Defense Analyses Communications and Computing Federally Funded Research and Development Center has been in existence since 1956, the Department of Defense added it to the Master Government List of Federally Funded Research and Development Centers for the first time in October 1995.
- [6] The Department of Energy removed Oak Ridge Institute for Science and Education (ORISE) from the Master Government List of Federally Funded Research and Development Centers on February 22, 1999.
- [7] In May 1996 the name was changed from Continuous Electron Beam Accelerator Facility.
- [8] On March 1, 1998 Brookhaven National Laboratory acquired a new nonprofit administrator (Brookhaven Science Associates, Inc.). The previous administrator was a university consortium.
- [9] In September 1991 the name was changed from Solar Energy Research Institute.
- [10] On April 1, 2000 Oak Ridge National Laboratory acquired a new nonprofit administrator (UT-Battelle, LLC). The previous administrator was the industrial firm Lockheed Martin Energy Research Corp.
- [11] In 2000, the name was changed from NCI Frederick Cancer Research and Development Center. It continues to be a Federally Funded Research and Development Center.
- [12] Since February 1984 this center includes three former Federally Funded Research and Development Centers: Cerro Tololo Inter-American Observatory, Kitt Peak National Observatory and the National Solar Observatory (formerly Sacramento Peak Observatory).
- [13] October 1, 1998 the Critical Technologies Institute was renamed The Science and Technology Policy Institute.
- [14] In October 1998 the Tax Systems Modernization Institute (IIT Research Institute) Lanham, MD was replaced with Internal Revenue Service (IRS) Federally Funded Research and Development Center administered by the MITRE Corp. in McLean, VA.



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# **Down Selection Rationale**

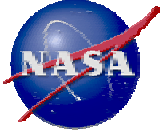


# Down Selection Criteria

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## Overarching Criteria:

- Identified functions to remain with NASA which are Inherently Governmental or Appropriately Governmental, e.g., functions that involve ISS Vehicle/crew remained with NASA
- Establish an FFRDC that receives a critical mass of work to perform which is consistent with the objectives and is set up for success
  - Prioritized 1) Management, 2) Science, 3) Engineering in order to focus on desired objectives
- Assess functions that interface with the vehicle
- To maximum extent possible, want the ISS users to have a single point of entry into ISS utilization process
- Prioritized management and science over engineering



# Down Selection Criteria, cont'd

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- Functions remaining with NASA because Inherently Governmental
  - Function 0: Defining Policy and Strategic Plans
  - Function 2: Preparing, Allocating, and Executing Budgets
  - Function 12: Certifying Safety
- Functions remaining with NASA because Appropriately Governmental
  - Function 3b: Selection
  - Function 5b: Authority to Proceed
  - Function 15: Integrating User Missions – Physical
  - Parts of functions 13b, 14, and 16
  - IP payload processing remains with NASA until agreements are established to work with FFRDC



# Down Selection Criteria, cont'd

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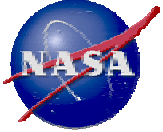
- Primary purpose is to represent the entire user community
  - Examined functions to identify where users specifically interfaced within ISS utilization process
  - Primary interfaces include:
    - Function 4: Establishing payload/experiment requirements
    - Function 6: Developing and qualifying flight research systems
    - Function 13: Managing Missions and Allocating Services
    - Function 14: Integrating User Mission - Analytical
    - Function 16: Integrating User Missions - Operational



# Down Selection Criteria, cont'd

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- Having S/T/C Leadership is critical
  - Functions necessary for management include:
    - Function 0: Support on SSUB and strategic planning process
    - Function 1: Management of Research Utilization
    - Function 2: Support by providing proposed FFRDC budget
    - Function 3: Lead management of selecting and prioritizing (No COI because final selection remains with NASA.)
    - Function 5: Shared, recognizing that Authority to Proceed remains with Centers and that engineering expertise from Centers is required
    - Function 18: Educating and Reaching Out to the Public
    - Function 19: Recommend improvements to foster S/T/C Research
    - Function 20: Managing Archival Data



## Down Selection Criteria, cont'd

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- Other function determined to be appropriate to give to FFRDC:
  - Function 9: Maintaining and Sustaining Ground Systems.  
Users have the vested interest in proper operation and maintenance of equipment.
- Functions which are dependent on the proposal from the FFRDC, therefore, no allocation was made
  - Function 10: Constructing Ground Facilities
  - Function 11: Maintaining Ground Facilities





# Global Review of Functions

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- Management related:
  - Functions 0, 1, 2, 3, 5, 13, 16, and 19
- Science related:
  - Functions 3, 17, 18, 20
- Engineering related:
  - Functions 4, 5, 6, 7, 8, 9, 14, and 16



# Down Selection - Options B & C

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Reason for elimination from consideration:

- Cannot do management well without key tactical functions in 1(c) and 13 (b). Good strategic planning/management requires input from tactical implementation.
- Does not include all functions where there is significant interface with user



# Down Selection - Option D

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Reason for elimination from consideration:

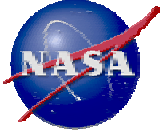
- Insufficient operational control because tactical control in functions in 1(c) and 13(b) has not been allocated
- Better user interface than Options B & C, but still missing functions 14 and 16 with involve user interface.



# Down Selection - Option E

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- Does not include function 14, Integrating User Mission – Analytical
  - FFRDC would not be involved in integration
  - Function 14 involves significant vehicle interface and engineering
  - While FFRDC could not interface for users in function 14, seems as effective as option F where this is a support role.



# Down Selection - Option F

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- Contains all functions necessary for sufficient operational control
- Contains all the functions to permit FFRDC to be single source of entry
- Does contain engineering causing FFRDC to lose some focus, but allocation is either support function or the FFRDC would manage contracts.



# Down Selection - Options G & H

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Reason for elimination from consideration:

- Missing key functions which are necessary to support interfaces with users. (i.e., Functions 4, 6, and 14 have not been allocated)
- Users can be better represented if FFRDC has been allocated a role in functions 7 and 9



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# **Option Advantages/Disadvantages/Risks/Risk Mitigation**



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Legal Structure

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Legal Structure				
	No additional authority needed to establish. Well established policy found in section 35.107 of the Federal Acquisition Regulation	Requires notification to Office of Science and Technology Policy (OSTP)	OSTP could object to the creation of a new FFRDC.	Have supporting documentation indicating FFRDC is best structure to represent S/T/C.
		Per 10 U.S.C. 2367, the FFRDC cannot receive any funds from DoD until after 60 day notification to Congress.	Congress could move to stop the expenditure of DOD funds.	Have supporting documentation indicating FFRDC is best structure to represent S/T/C.
	Diverse corporate arrangements allows for the creation of an FFRDC tailored to meet the needs of the sponsoring agency.			
	Can sue without Justice Department authorization			
	Can lobby			
		Cannot make agreements with other governments (IPs)		FFRDC can implement any agreement NASA enters into with IP's.





# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Characteristics

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
<b>Characteristics</b>				
A Federal agency must sponsor FFRDC and FFRDC must have a specific purpose or mission that is part of the sponsoring agreement. Sponsoring agreement normally is a FAR based contract.	Having a specific purpose or mission limits/prevents organizational conflicts of interest. Also mission statement keeps FFRDC focused.			
FFRDC cannot compete with the private sector.	Limitation on competing with the private sector limits/prevents organizational conflicts of interest.			
Every five years sponsoring agency reviews whether the need and purpose for FFRDC still exist.	Five year review limits potential abuse by requiring sponsoring agency ensure need is still valid. Also allows the mission or purpose to change if the needs of the sponsoring agency changes.			
Sponsoring agreement must contain a provision for winding down the FFRDC when the requirement no longer exists.	The requirement to have a wind down provision matches the expectation that ISS requirement is a finite requirement.			



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Characteristics, cont'd

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Anticipate long term relationship; exemption from CICA exists for FFRDC.	Long term relationship enables FFRDC to attract and retain high quality personnel. Relationship encourages the FFRDC to maintain currency in its field.	General distrust and reluctance to establish new FFRDC due to CICA exemption and the belief that FFRDC's compete with the private sector.	The special authority granted to FFRDC can be abused.	Ensure the FFRDC is only able to do work which falls within its stated purpose, mission, or special competencies. Review requirement every five years.
Enjoys a special relationship with sponsoring agency with access to sensitive and proprietary data, and to Gov't employees and facilities	<p>Although contractor has access to employees and facilities, only an FFRDC can partner with a sponsoring agency, thus assuming roles a contractor could not perform. FFRDC would be a member of the SSUB.</p> <p>This access enables an FFRDC to bring together the expertise and outlook of government, industry, and academia to solve complex technical problems that cannot be solved by any one group alone.</p>		The FFRDC performs functions which are inherently governmental as defined by OFPP policy letter 92-1.	Write partnering agreements carefully. Ensure the FFRDC does not manage civil servants or provides funding to the centers.
Operates in the public interest with objectivity and independence	Much less oversight than in a typical contractor relationship		Potential abuse by FFRDC	<p>Review every five years enables rewrite of the sponsoring agreement.</p> <p>Can evaluate performance as part of an Award fee provision.</p>



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Characteristics, cont'd

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
FFRDC will not be involved in actual research, or final selection.	<p>This limitation should prevents an organizational conflict of interest</p> <p>Complete research allocation is available to entire user community.</p> <p>Diminishes need for the FFRDC to have engineering expertise except to the extent needed to manage engineering contracts.</p>		<p>May hinder the FFRDC's ability to attract qualified people if they want to do science.</p> <p>May hinder the FFRDC's ability to understand the process (smart buyer)</p>	<p>Ability to manage research and ISS utilization should attract appropriate individuals to FFRDC particularly given fact that most individuals in each science discipline have not flown on ISS</p> <p>Gain expertise through the use of IPA's and partnering with the Centers.</p>
NASA will retain competencies associated with being a PD as reflected in functions 4, 5 & 6.	<p>Through Partnering Agreements, the discipline specific Centers will retain Payload Development Functions enabling them to be involved in cutting edge science.</p> <p>Functional allocation enables the FFRDC to take advantage of expertise at the Centers and still have sufficient control to be the lead for customer interface regarding payload development.</p>			
FFRDC's may be classified as studies and analyses centers, systems engineering and integration centers, and research and development laboratories	<p>Flexibility in functions allows NASA to create an FFRDC focused on S/T/C management and the needs of the user community.</p>			



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Budget and Finance

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Budget and Finance	FFRDC may obtain funding support from other sources, including non-governmental	Any work done for private sector (or any Government entity) must come within the FFRDC's stated purpose, mission, or special competencies		NASA must approve any work FFRDC does for an outside source to ensure effort is within mission/purpose of the FFRDC.
	FFRDCs are subject to governmental cost accounting standards and to governmental audits			
		Additional budget required to implement		



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Personnel and Staffing

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Personnel and Staffing				
FFRDC directly hires their personnel, using their own personnel system	Helps attract and retain high quality personnel because personnel system is not tied to the Federal pay schedule	Potentially higher cost to NASA	Highly qualified civil servants may leave NASA for higher salaries resulting in a loss of Center competencies	Centers need to cross train to retain competencies.
Per 5 U.S.C. 3371 et. seq. IPA's can be used to assign NASA civil servants to FFRDC for up to two years with additional two years if approved by the head of the agency	IPA's to FFRDC would assist in orderly transition  Use of IPA's help Centers and users gain confidence in the FFRDC.		IPA's would be making less than personnel at FFRDC. Status of IPA's after returning to NASA is uncertain. Center's ability to retain appropriate skill mixes and Competencies is uncertain if IPA's are heavily utilized.	Human Capital resources need to address these issues. A judicious use of IPA's, as implemented in the FFRDC option, was predetermined to effectively mitigate these risks.



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## ~~Management Structure and Interfaces~~

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Management Structure and Interfaces				
FFRDC's are operated, managed, and/or administered by either a university or consortium of universities, other not-for-profit or nonprofit organizations, or an industrial firm, as an autonomous or an indefinable separate operating unit of a parent organization	Excellent representation of user community since most FFRDC's are nonprofit organizations managed by universities. The nonprofit aspect helps eliminate concern about organizational conflicts of interest. Having an academic base gives credibility, enhances research, and aids in understanding user community needs.	May have to limit bidders to nonprofit entities if competition is used to establish FFRDC.		Available exceptions in CICA to limit competition, e.g., (c) (3)
	The fact that for-profit can be part of an FFRDC help secure necessary engineering expertise and business acumen for commercialization.		Potential conflict of interest with parts that are for profit.	Need to create firewalls for organizational conflicts of interest vis-à-vis for-profit participation  Have FFRDC contract with for-profits entities as much as possible If FFRDC's relationship with for-profit entities is not through subcontracts, then those parts of the FFRDC that are for-profit must be autonomous organization or an identifiable separate unit of the parent for-profit organization.



# Mitigation

## Management Structure and Interfaces, cont'd

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Established a new position of customer integration and ops support representative (customer rep) for functions 6 & 7.	<p>New position for customer rep achieves one objective of ISS utilization - transparency to users</p> <p>Reduces user interfaces by creating a single point of entry.</p> <p>New position may attract new users.</p>	New position may slightly increase costs of ISS utilization	New position could result in an additional layer.	Need to reorganization the functions NASA is performing. FFRDC in position to suggest such changes.
Interface with ISS Program relative to Safety and CoFR	Gave FFRDC lead in functions 13, 14 & 16 for complete management of ISS utilization and complete interface with users.		FFRDC will become involved in matters of safety and CoFR.	Establish communications and lines of responsibility and authority between FFRDC and ISS Program. Review/revise allocation of FTE's for functions 13, 14 & 16. Also include IPA's in the transition of 13,14 &16.
Other interfaces		IP interface is not well defined except to assume that the IP's will request the FFRDC process their payloads.		NASA/IP's/FFRDC need to establish protocols.



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Procurement

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Procurement	Contracts awarded by an FFRDC do not have to comply with all of the FAR; e.g. not required to have full and open competition	Subject to FAR requirements that apply to Federal contractors		Sponsoring agency can have the ability to consent to large contracts as is the case with JPL. This is a streamlined version of the clause; not the version required by the FAR.





# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Timeframe and Schedule

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Timeframe and Schedule				
Establishment via competition	Establishment via competition meets private sector expectations	Delays formation by one year.		
Transition approach	<p>Quickly involved FFRDC in those areas that are perceived to be broken, e.g., outreach.</p> <p>Transitioned engineering functions more slowly to help FFRDC gain engineering expertise and ramp up more easily.</p>		<p>FFRDC is unsuccessful because given too much responsibility in 1st year.</p> <p>Defers having single point of entry.</p>	<p>Have private sector validate the transition strategy via RFI.</p> <p>Transition of additional functions based on successful performance.</p> <p>Get input from user community by issuing RFI.</p> <p>Allows centers to retain much of the PD functions, but gives lead to FFRDC with customer rep.</p> <p>Carefully allocate functions.</p> <p>Have FFRDC manage engineering under function 13,14 &amp;16 after two years of support to build expertise. Transfer only after successful performance.</p>
Three year transition plan	Allows FFRDC to assume management of ISS utilization quickly to better represent needs of the users	FFRDC may not be able to ramp up in three years		Include proposed transition schedule in RFI.
Considered end dates of existing contracts with transition of functions to the FFRDC.	Transition plan does not involve terminating any existing contracts.			



# Option Advantages/Disadvantages/Risks/Risk

## Mitigation

### Timeframe and Schedule, cont'd

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
Considered effect on civil service workforce	Centers retain many of the competencies associated with PD function. Length of transition eases effect on civil service.			Use of IPA's help move expertise from NASA to the FFRDC.
Have NASA continue processing payloads for IP's until IP's request FFRDC performs this function - something the end state assumes.	Strategy avoids much of the interface problems with the IP's and provides the FFRDC with an additional incentive for good performance.	IP interface is not well defined except to assume IP's will request the FFRDC to process payloads.		NASA/IP's/FFRDC need to establish protocols.
Involved FFRDC in management early on	Increases FFRDC to increase its influence with user community.		FFRDC may not perform well because receives too many responsibilities too quickly.	Normally, FFRDC supports before assumes lead. Lead given only after successful performance is demonstrated. Generally, civil servants remain in place until FFRDC demonstrates successful performance. Use of IPA's to give FFRDC needed skills that exist in NASA.



# Option Advantages/Disadvantages/Risks/Risk Mitigation

## Performance Evaluation

FFRDC	Advantages	Disadvantages	Risk	Risk Mitigation
<b>Performance Evaluation</b>				
An Award fee provision can be included in the sponsoring agreement/contract based on the one in the Caltech contract for the operation of JPL.	<p>Award fee provision allows the sponsoring agency to evaluate the performance of the FFRDC on a periodic basis.</p> <p>Award fee mechanism is very effective with academically based entity.</p>	<p>If the FFRDC is with an educational institution or other nonprofit, award fee mechanism represents an additional cost to NASA.</p> <p>Administrating award fee plans requires resources.</p>		
Strategy for IP's	FFRDC has incentive to perform well to have IP's request FFRDC process their payloads.			
Additional work only transferred after contractor demonstrates successful performance.	<p>Transition plan provides incentive for FFRDC to perform well.</p> <p>Ensures NASA that functions will not accrete to FFRDC unless initial performance has been successful.</p>		May take longer than three years to transition functions to the FFRDC.	Pre-establishment of "Performance Gates" as part of the proposal process could mitigate the premature transfer of work.



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# Budget Analysis



# FY 2004 Budget Estimate

Functions	Role	% NGO	FTE					Budget (\$M)				
			Baseline CS	Baseline Contractor	CS	NASA Contractor	NGO	NGO Contractors	Baseline	Continued NASA\$	Over to NGO	Additional NGO\$
0 Defining and Implementing Policy and Strategic Plans	VS	10	7	0	7	0	0.7		0.14	0.14		0.106
1* Code & Contract Oversight of FYBDC	I											
1 Management of Research Utilization												
a Implement Strategic Plans	S	50	5	7	5	7	2.5		0.566	0.566		0.305
b Manage Research Programs	S	50	6	9	6	9	3		1.121	1.121		0.46
c Manage Integrated Research Utilization	S	50	6	9	6	9	3		2.123	2.123		0.46
2 Preparing and Allocating Budgets												
a Budget Formulation, Justification	VS	50	10	4	10	4	5		1.145	1.145		0.75
b Budget Execution	I		9	3	9	3			0.673	0.673		
3 Selecting and Prioritizing Research												
a Managing selection process	S	50	1		1		0.5		0.126	0.126		0.075
b Selection	A		1		1							
c Prioritizing selections	S	50	1		1		0.5					0.075
4 Establishing Payload/Experiment Req & Feasibility												
a Research Requirements	L	10	12	34	12		1.2	34	6.134		6.134	0.18
b Engineering Concepts, Development, & Hardware Assessments	L	10	12	34	12		1.2	34	11.305		11.305	0.18
5 Developing Cost, Schedule, and Risk Assessments												
a Perform Cost, Schedule, Risk Management Assessment	S	25	13	9	13	9	1.3		5.868	5.868		0.195
b Authority to Proceed	S	25	13	8	13	8	1.3		0.03	0.03		0.195
6 Developing and Qualifying Flight Research Systems												
a Customer Integration & Ops Supt Rep	L	100					12					1.8
b DDTSE			51	176	51	176			54.749	54.749		
c Subtask Integration			51	176	51	176			6.865	6.865		
d Operations	S	50	15	75	15	75	7.5		25.746	25.746		1.125
7 Maintaining and Sustaining Flight Research Systems												
a Project Management/Customer Integration & Ops Supt Rep	L	100					8					1.2
b DDTSE			15	100	15	100			17.007	17.007		
c Operations			10	42	10	42			4.765	4.765		
8 Developing Ground Systems			22	42	22	42			7.958	7.958		
9 Maintaining & Sustaining Ground Systems			55	189	55	189						
a Identify changes/upgrades to Research Flight Systems									1.785	1.785		
b Maintain & Sustain Research Ground Systems									2.765	2.765		
10 Constructing Ground Facilities			1	7	1	7			1.182	1.182		
11 Maintaining Ground Facilities			6	40	6	40			3.757	3.757		
12 Certifying Safety of Research Flight & Ground Systems	A		17	32	17	32			8.794	8.794		
13 Managing Missions and Allocating Services												
a Advocacy, Manifesting & Resource Allocations	S	50	16.5	40	16.5	40	8.25		5.214	5.214		1.24
b ISS Research Mission Management	S	50	16.5	39	16.5	39	8.25		8.529	8.529		1.24
14 Integrating User Missions - Analytical			46	247	46	247						
a Payload Engineering Integration									10.867	10.867		
b Payload Software Integration & Flight Production									3.24	3.24		
15 Integrating User Missions - Physical	A		83	134	83	134			39.625	39.625		
16 Integrating User Missions - Operational			63	256	63	256						
a Payload Training									7.761	7.761		
b Operations Integration									4.723	4.723		
17 Conducting Research & Analysis & Disseminating Results			24	11	24	11			3.89	3.89		
18 Educating & Reaching Out to the Public (including industry)												
a Management & Control	L	100	6	8	6		6	8	1.298		1.298	0.9
b Disseminate, Communicate & Support results to ISS customers	L	100	6	8	6		6	9	1.909		1.909	0.9
19 Recommending ISS Pre-Planned Product Improvements	L	100	2	4	2		2	4	0.622		0.622	0.3
20 Managing Archival of Research Samples, Data, and Results	L	100	6	21	6		5	21	2.32		2.32	0.75
TOTALS			607	1764	607	1654	89.2	110	256.962	233.294	23.668	12.485
			FY94 Total NGO Personnel-----*						FY94 Additional Budget--*			
			(inc.FPAs and infrastructure)					252	\$18.38M			

## Assumption:

Contractors baselined do not transition to NGO until NGO has lead of that function.  
 Contractors do not add to the cost since they are already a part of the baselined budget.  
 Additional notes to the side of applicable functions.  
 First year a function is performed no reduction in CS is assume, time allotted for transition of knowledge.

\*Boxes that are highlighted will need adjustment to cover the cost of the contractors which will go to the NGO. Values are TBD.

\*\*Where NASA remains lead, funds to support the contractor should remain with NASA.





# FY 2005 Budget Estimate

Functions	Role	% NGO	FTE					Budget (\$M)				
			Baseline CS	Baseline Contractor	Continued CS	NASA Contractor	NGO	NGO Contractors	Baseline	Continued NASA	Over to NGO	Additional INQOS
<b>0 Defining and Implementing Policy and Strategic Plans</b>	VS	10	7	0	6.3	0	0.7		0.15	0.15		0.105
<b>1* Code II Contract Oversight of FTRC</b>	I											
<b>1 Management of Research Utilization</b>												
a Implement Strategic Plans	S	50	5	7	2.5	7	2.5		0.57	0.57		0.305
b Manage Research Programs	L	100	6	9			6	9	1.15		1.15	0.9
c Manage Integrated Research Utilization	S	75	6	9	1.5	9	4.5		2.125	2.125		0.675
<b>2 Preparing and Allocating Budgets</b>												
a Budget Formulation, Justification	VS	50	10	4	5	4	5		0.64	0.32	0.32	0.75
b Budget Execution	I		9	3	9	3			1.23	1.23		
<b>3 Selecting and Prioritizing Research</b>												
a Managing selection process	L	100	1					1	0.134	0.134		0.15
b Selection	A		1		1							
c Prioritizing selections	L	100	1					1				0.15
<b>4 Establishing Payload/Experiment Req &amp; Feasibility</b>												
a Research Requirements	L	10	12	34	10.8		1.2	34	7.746		7.746	0.18
b Engineering Concepts, Development, & Hardware Assessments	L	10	11	33	9.9		1.1	33	11.045		11.045	0.165
<b>5 Developing Cost, Schedule, and Risk Assessments</b>												
a Perform Cost, Schedule, Risk Management Assessment	S	25	14	9	10.5	9	3.5		5.7	5.7		0.525
b Authority to Proceed	L	100	14	8			14	8	0.03		0.03	2.1
<b>6 Developing and Qualifying Flight Research Systems</b>												
* Customer Integration & Ops Supt Rep	L	100						10.8				1.62
a DOT&E			43	126	43	126			31.862	31.862		
b Subcontract Integration			43	100	43	100			7.439	7.439		
c Operations	S	50	15	65	15	65	7		23.468	23.438		1.05
<b>7 Maintaining and Sustaining Flight Research Systems</b>												
* Project Manager/Customer Integration & Ops Supt Rep	L	100						7.2				1.08
a DOT&E	S	50	16	74	16	74	8		21.771	21.771		1.2
b Operations	S	50	15	74	15	74	7.5		8.61	8.61		1.125
c Operations	S	50	19	42	19	42	9.5		9.981	9.981		1.425
<b>8 Developing Ground Systems</b>												
<b>9 Maintaining &amp; Sustaining Ground Systems</b>												
a Identify changes/upgrades to Research Flight Systems	S	50	24	88	24	88	12		2.257	2.257		1.8
b Maintain & Sustain Research Ground Systems	S	50	25	88	25	88	12.5		3.469	3.469		1.875
<b>10 Constructing Ground Facilities</b>												
a			1	11	1	11			3.052	3.052		
<b>11 Maintaining Ground Facilities</b>												
a			6	37	6	37			4.33	4.33		
<b>12 Certifying Safety of Research Flight &amp; Ground Systems</b>	I		17	34	17	34			9.294	9.294		
<b>13 Managing Missions and Allocating Services</b>												
a Advocacy, Marketing & Resource Allocation	L	75	15	40			15	40	5.364		5.364	2.25
b ISS Research Mission Management	S	75	15	39	3.75	39	11.25		8.754	8.754		1.69
<b>14 Integrating User Missions - Analytical</b>												
a Payload Engineering Integration	S	50	23	120	23	120	11.5		10.33	11.33		1.725
b Payload Software Integration & Flight Production	S	50	23	120	23	120	11.5		3.242	3.242		1.725
<b>15 Integrating User Missions - Physical</b>	A		87	144	87	144			22.356	22.356		
<b>16 Integrating User Missions - Operational</b>												
a Payload Training	S	50	28.5	130	28.5	130	14.25		8.606	8.606		2.14
b Operations Integration	S	50	28.5	130	28.5	130	14.25		6.908	6.908		2.14
<b>17 Conducting Research &amp; Analysis &amp; Disseminating Results</b>												
a			27	11	27	11			4.166	4.166		
<b>18 Educating &amp; Reaching Out to the Public (including industry)</b>												
a Management & Control	L	100	6	8				6	0.322		0.322	0.9
b Disseminate, Communicate & Support results to ISS customers	L	100	6	9				9	3.302		3.302	0.9
<b>19 Recommending ISS Pre-Planned Product Improvements</b>	L	100	2	4				2	0.752		0.752	0.3
<b>20 Managing Archival of Research Samples, Data, and Results</b>	L	100	7	22				7	2.731		2.731	1.05
<b>TOTALS</b>			568	1632	501.25	1465	213.75	187	232.69	201.899	32.762	32.87
<b>FY05 Total NGO Personnel -&gt;</b> (incl. JFAs and Infrastructure)							<b>475</b>	<b>FY05 Additional Budget -&gt;</b>				<b>\$43.67M</b>

## Assumption:

Contractors baselined do not transition to NGO until NGO has lead of that function.  
Contractors do not add to the cost since they are already a part of the baselined budget.  
Additional notes to the side of applicable functions.  
First year a function is performed no reduction in CS is assume; time allotted for transition of knowledge.

\*Boxes that are highlighted will need adjustment to cover the cost of the contractors which will go to the NGO. Values are TBD.

\*\*Where NASA remains lead, funds to support the contractor should remain with NASA.



# FY 2006 Budget Estimate

Functions	Role	% NGO	FTE					Budget (\$M)				
			Baseline CS	Baseline Contractor	Continued CS	NASA Contractor	NGO	NGO Contractors	Baseline	Continued NASA\$	Carried Over to NGO	Additional NGO\$
5 Defining and Implementing Policy and Strategic Plans	VS	10	7	0	6.3	0	0.7		0.14	0.14		0.105
1* Code U Contract Oversight of FFRDC	I											
1 Management of Research Utilization												
a Implement Strategic Plans	S	50	6	7	1.5	7	3.5		0.568	0.568		0.525
b Manage Research Programs	L	100	6	9			6	9	1.172		1.172	0.9
c Manage Integrated Research Utilization	L	100	6	9			6	9	2.146		2.146	0.9
2 Preparing and Allocating Budgets												
a Budget Formulation, Authorizations	VS	75	10	4	2.5	4	7.5		0.651	0.651		1.125
b Budget Execution	I		9	3	9	3			0.953	0.953		
3 Selecting and Prioritizing Research												
a Managing selection process	L	100	1				1		0.141	0.141		0.15
b Selection	A		1		1							
c Prioritizing selections	L	100	1				1					0.15
4 Establishing Payload/Experiment Req & Feasibility												
a Research Requirements	L	10	11	33	9.9		1.1	33	5.78		5.78	0.165
b Engineering Concepts, Development, & Hardware Assessments	L	10	11	33	9.9		1.1	33	10.442		10.442	0.165
5 Developing Cost, Schedule, and Risk Assessments												
a Perform Cost, Schedule, Risk Management Assessment	L	25	15	9	11.25		3.75	9	5.632		5.632	0.563
b Authority to Proceed	L	100	15	9			15	9	0.06		0.06	2.25
6 Developing and Qualifying Flight Research Systems												
a Customer Integration & Ops Supt Plan	L	100					9.72					1.45
b DOTSE			40	106	40	106			22.752	22.752		
c Subtrack Integration			20	45	20	45			7.002	7.002		
d Operations	L	50	15	65	7.5		7.5	65	9.005		9.005	1.125
7 Maintaining and Sustaining Flight Research Systems												
a Project Management/Customer Integration & Ops Supt Plan	L	100					7.92					1.19
b DOTSE	S	75	17	81	4.25	81	12.75		10.92	10.92		1.9
c Operations	S	75	16	80	4	80	12		12.373	12.373		1.8
d Operations	S	50	20	35	10	35	10		7.989	7.989		1.5
8 Developing Ground Systems												
9 Maintaining & Sustaining Ground Systems												
a Identify changes/Upgrades to Research Flight Systems	S	50	21	85	10.5	85	10.5		3.48	3.48		1.575
b Maintain & Sustain Research Ground Systems	S	50	21	85	10.5	85	10.5		3.128	3.128		1.575
10 Constructing Ground Facilities			1	9	1	9			1.792	1.792		
11 Maintaining Ground Facilities			6	36	6	36			23.854	23.854		
12 Certifying Safety of Research Flight & Ground Systems	I		17	32	17	32			7.678	7.678		
13 Managing Missions and Allocating Resources												
a Advocacy, Marketing & Resource Allocations	L	100	14	40			14	40	5.305		5.305	2.1
b ISS Research Mission Management	L	100	14	39			14	39	8.978		8.978	2.1
14 Integrating User Missions - Analytical												
a Payload Engineering Integration	S	50	23	113	11.5	113	11.5		9.26	9.26		1.725
b Payload Software Integration & Flight Production	S	50	23	113	11.5	113	11.5		2.611	2.611		1.725
15 Integrating User Missions - Physical	A		91	135	91	135			21.127	21.127		
16 Integrating User Missions - Operational												
a Payload Training	S	75	24.5	132.5	6.125	132.5	18.375		8.115	8.115		2.76
b Operations Integration	S	75	24.5	132.5	6.125	132.5	18.375		7.318	7.318		2.76
17 Conducting Research & Analysis & Disseminating Results			31	16	31	16			5.662	5.662		
18 Educating & Reaching Out to the Public (including industry)												
a Management & Control	L	100	6	9			6	9	0.318		0.318	0.9
b Disseminate, Communicate & Support results to ISS customers	L	100	6	9			6	9	2.866		2.866	0.9
19 Recommending ISS Pre-Planned Product Improvements	L	100	2	5			2	5	0.747		0.747	0.3
20 Managing Archival of Research Samples, Data, and Results	L	100	8	24			8	24	2.749		2.749	1.2
TOTALS			567	1530	347.35	1260	237.28	285	220.894	165.494	53.2	35.580
			FY06 Total NGO Personnel--> Ops, IPAs and infrastructure					642	FY06 Additional Budget--> \$51.198			

## Assumption:

Contractors baselined do not transition to NGO until NGO has lead of that function.  
 Contractors do not add to the cost since they are already a part of the baselined budget.  
 Additional notes to the side of applicable functions.  
 First year a function is performed no reduction in CS is assume; time allotted for transition of knowledge.

\*Boxes that are highlighted will need adjustment to cover the cost of the contractors which will go to the NGO. Values are TBD.

\*\*Where NASA remains lead, funds to support the contractor should remain with NASA.



# FY 2007 Budget Estimate

Functions	Role	% NGO	FTE						Budget (\$M)			
			Baseline CS	Baseline Contractor	Continued CS	NASA Contractor	NGO	NGO Contractors	Baseline	Continued NASA's	Carried Over to NGO	Additional NGOs
1. Defining and Implementing Policy and Strategic Plans	VS	10	7	0	8.3	0	0.7		0.15	0.15		0.105
1* Code & Contract Oversight of FFRDC	I											
1 Management of Research Utilization												
a Implement Strategic Plans	S	50	5	7	1.5	7	3.5		0.569	0.569		0.525
b Manage Research Programs	L	100	6	9			6	9	1.192		1.192	0.9
c Manage Integrated Research Utilization	L	100	6	9			6	9	2.136		2.136	0.9
2 Preparing and Allocating Budgets												
a Budget Formulation, Justifications	VS	75	10	4	2.5	4	7.5		1.224	1.224		1.125
b Budget Execution	I		9	3	9	3			0.669	0.669		
3 Selecting and Prioritizing Research				0		0						
a Managing selection process	L	100	1				1		0.15	0.15		0.15
b Selection	A		1		1							
c Prioritizing selections	L	100	1				1					0.15
4 Establishing Payload/Experiment Req & Feasibility												
a Research Requirements	L	10	8.5	33	7.95		0.85	33	6.687	6.687	6.687	1.20
b Engineering Concepts, Development, & Hardware Assessments	L	10	8.5	33	7.95		0.85	33	9.359	9.359	9.359	1.20
5 Developing Cost, Schedule, and Risk Assessments												
a Perform Cost, Schedule, Risk Management Assessment	L	25	15.5	10	11.625		3.875	10	6.479	6.479	6.479	0.59
b Authority to Proceed	L	100	15.5	10			15.5	10	0.06		0.06	2.325
6 Developing and Qualifying Flight Research Systems												
a Customer Integration & Ops Supt Rep	L	100					8.75					1.312
a DOT&E			35	80	35	80			17.243	17.243		
b Subtrack Integration			21	54	21	54			6.3	6.3		
c Operations	L	50	15	50	7.5		7.5	50	8.837	8.837	8.837	1.125
7 Maintaining and Sustaining Flight Research Systems												
a Project Management/Customer Integration & Ops Supt Rep	L	100					8.71					1.3
a DOT&E	L	100	16	78.5			16	78.5	18.814		18.814	2.4
b Operations	L	100	16	78.5			16	78.5	12.189		12.189	2.4
8 Developing Ground Systems	L	100	20	31			20	31	7.643		7.643	3
9 Maintaining & Sustaining Ground Systems												
a Identify changes/updates to Research Flight Systems	L	100	21	84.5			21	84.5	2.295		2.295	3.15
b Maintain & Sustain Research Ground Systems	L	100	21	84.5			21	84.5	4.898		4.898	3.15
10 Constructing Ground Facilities			1	7	1	7			0.900	0.900		
11 Maintaining Ground Facilities			6	37	6	37			25.364	25.364		
12 Certifying Safety of Research Flight & Ground Systems	I		17	31	17	31			7.054	7.054		
13 Managing Missions and Allocating Services												
a Advocacy, Monitoring & Resource Allocations	L	100	15	39			15	39	4.34		4.34	2.35
b ISS Research Mission Management	L	100	14	38			14	38	9.876		9.876	2.3
14 Integrating User Missions - Analytical												
a Payload Engineering Integration	L	90	23	96	2.3		20.7	96	9.162		9.162	3.1
b Payload Software Integration & Flight Production	L	90	23	96	2.3		20.7	96	2.639		2.639	3.1
15 Integrating User Missions - Physical	A		88	132	88	132			22.162	22.162		
16 Integrating User Missions - Operational												
a Payload Training	L	100	26	135			26	135	7.631		7.631	3.9
b Operations Integration	L	100	26	134			26	134	9.01		9.01	3.9
17 Conducting Research & Analysis & Disseminating Results			31	17	31	17			6.908	6.908		
18 Educating & Reaching Out to the Public (including industry)												
a Management & Control	L	100	7	9			7	9	1.469		1.469	1.05
b Disseminate, Communicate & Support results to ISS customers	L	100	7	9			7	9	2.452		2.452	1.05
19 Recommending ISS Pre-Planned Product Improvements	L	100	2	5			2	5	0.798		0.798	0.3
20 Managing Archival of Research Samples, Data, and Results	L	100	9	24			9	24	2.925		2.925	1.35
<b>TOTALS</b>			<b>554</b>	<b>1468</b>	<b>258.025</b>	<b>372</b>	<b>313.136</b>	<b>1096</b>	<b>219.815</b>	<b>88.895</b>	<b>139.82</b>	<b>49.257</b>
							<b>FFR7 Total NGO Personnel--&gt;</b> (inc. PAs and infrastructure)		<b>1705</b>	<b>FFR7 Additional Budget--&gt;</b>		<b>\$91.28M</b>

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